Dorsey

Richd Marris

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Richd Marris.

Nescit vox missa reverti.

Nescit vox, missa reverti.

Nescit vox missa reverti.

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Richd Marist

Nescit vox missa reverti

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Nescit vox missa reverti.

Nescit vox missa reverti.

R

Richard Evans

Nota Bene

R Maris.
1835.-

Notes
of
a course of
Lectures on the
Materia Medica
by
Saml Jackson MD
AD 1826, 7, 8.

To which are added
Three lectures on the
Stethescope,
by the same - AD 1827-
Vol 2nd

Nescit vox missa reverti.

Richard Marsh -
1835 -

Lecture 33rd

We proceed next to the consideration of those medicines which are exhibited with a view to their action on the genital organs. The organs of reproduction & generation are very subject to derangement, & every physician has patients with real or imaginary affections of this nature & finds a profound knowledge of their physiology & pathology highly necessary. his means of cure are moral & therapeutick. All other organs besides these seem proper to the individual, but it is singular to these that they belong to the species & may be destroyed without the patient being seriously affected. These organs are likewise quiescent in infancy & in youth whilst those of digestion &c are perfected, nor do they attain their full powers till the age of puberty when they are the means of fulfilling the command to "Increase & multiply on the face of the earth." If exhausted or destroyed they soon wither away & are annihilated. Destined to so important a purpose, the laws of reproduction are of great importance to the medical philosopher & demand from him much reflection. In the male the organs of generation are less complicate than in the other sex & hence are liable to fewer derangements. Males are seldom incapable, whereas in civilised society sterility is very common among women. In large cities owing to luxury & too early indulgence in the pleasures of Venus 1/6 of marriages are unfruitful & the most of this number are owing to

the sterility of the women. The theory of this is obscure; I allude only to affections connected with reproductive organs. Of these, in civilized society none is so frequent or so often becomes a source of the greatest anxiety ~~than~~ as impotency. The loss of power in the organs of generation is a loss of the great attribute of the sex. The individual becomes isolated. he has lost his rank & membership in society; shall we then be surprised that he is delivered to Despair? Many Physiological enquiries have been instituted into the causes of this affection. Some of the parts are destined to elaboration & some to ejection either of which functions being absent the organ is useless. The want of the former arises from deficiency of testicles. of the latter from flaccidity, as is the case in children who have not yet received the powers & in men who have lost them. Masturbation & early abuse are the chief causes of deficiencies. the period of changes varies with the strength, the climate &c. But men lose their generative powers from other causes, such as tumours in cavities of the pelvis &c. from having a penis so large that the vessels cannot supply it sufficiently to achieve its erection from intemperance. hemorrhages & other evacuations, poisons &c (& last tho' not the least powerful) from the passions — shame, fear, joy, grief, excessive study may all emasculate & destroy. nor is it an uncommon event. Impotence also not unfrequently results from excess of passion, when

4. + Rüppel mentions that whilst in Aleppo he was often consulted for this cause by young Turks who are very regular in their ablutions prior to marriage after which they indulge in great excesses - Thos Traigne mentions the same fact & says the habit of prescribing fictitious charms &c -

desire is so strong as to consume its own powers. It is to restore to nature these important powers that the Materia Medica has lavished her choicest treasures. Are there really any such remedies? Cullen denies their existence. True, certain stimulants vivifiate the genital organs, but these are very uncertain & inconvenient. it is only by moral as well as therapeutical remedies that we can hope a cure, there being no medical treatment in which we can rely & the highly stimulating remedies of empiricism proving often very dangerous.

We are however more often called upon for aid by the female & of her complaints those denominated menstrual affections are the ones of which we principally treat. Menstruation consists in a periodical discharge of a red fluid which occurs every 3 or 4 weeks. this fluid the common people consider blood. Some physicians deem it a secretion. analogy however favors the former hypothesis & I confess I see no cause for not believing it. the interior of the uterus is lined with a Mucous Membrane & the discharge varies not only in quality but in quantity. The principal argument against the fluid being blood is that it is not coagulable. but in all mucous membranes (e.g. the stomach) coagulation depends upon the amount: when the discharge is very small it only consists of the colouring matter of the Blood & Serum. If the quantity be larger I am confident that in 1/3 or 1/2 of the cases coagulation is a common occurrence, but

Blood is often coughed up wh. cannot be coagulated, yet who will say that in this case 'tis a secretion.

It is discharged in jets 2 or 3 times per 24 hours.

depends on quantity - So also in the lungs if the discharge be very small there is no coagulation - if large & there be much fibrine, there is coagulation necessarily - I see nothing then in the ~~appearance~~ which renders proper the appellation of a Secretion - The Bowels are subject to great irregularities & Physicians are called upon first to relieve attention & secondly keep suspicion - The first or absence of the discharge when it should be present, & general bad health is denoted by more or less severe pain if the uterus be diseased - The flow often comes from other organs as the stomach, the kidneys, the umbilicus, the gums &c & a case is mentioned of a woman in this having a periodical discharge from the cheek! Sometimes other evacuations supply its place - If not from Pregnancy its suppression arises from a vitiated function - the causes of Amenorrhoea are different & lead to opposite practice. To the regularity of the discharge are requisite 1st full development of the ovaries - 2nd & 4th a healthy Uterus, 3rd the regularity of time (a month) 5th The direction of the excitement on the Uterus. Menorrhoea. A. The first cannot be denied tho' the mode of action is not known - if not developed the Uterine functions are quiescent - in disease these are rarely absent. B. An unhealthy Uterus is one of the most common causes - the symptoms are various, such as acute or chronic - excess of strength or weakness - in treating Amenorrhoea you must attend particularly to the Uterus, & direct your remedies to it, else the patient may suffer great pain - Acute irritation is seen

common tho it is generally erroneously supposed that the op=
=posite is the case - a pretense, since nearly 1/3 arise from ex=
=cessive excitation - this excess is either transitory or accidental,
or permanent & chronic - when accidental we have all the
symptoms of excitement, a hot skin, thirst, quick pulse, pain
in the loins & groin - this should be treated just like acute
inflammation of the Uterus - by general & local Bleeding & Bath,
absolute Diet & abstinence diminishes general & local excite=
=ment when suppression is removed we must treat
1st the interval & 2nd the Paroxysm - During the in=
=terval attempt to remove the inflammation by a
proper regimen - a low diet, leeches, blood (from a
vein in the foot (in preference to the arm) except
when pulse is very high - The usual practice of
administering hot stimulating teas, diffusible stimuli,
Drastick Purgatives &c is very prejudicial, failing, of
success almost invariably - The opposite state, at
times, exists & may be direct or indirect - The direct
occurs seldom & then before puberty or after the time
of bearing children hath passed - it may follow
chronic irritations - the latter is not unusual,
& here the loss of power depends on a loss in other
organs - You recollect in a prior lecture I laid it down
as an axiom that "Excess of action in one organ produ=
=ces a diminution in another" e.g. Chronic Gastritis,
Splenitis, Pleuritis &c are often causes of Amenorrhœa
here it is vain to use powerful Emmenagogues since
all excitement is mischievous - "An organ in a state
of irritation is most susceptible of irritation" - is an axiom

hitherto established - hence you should diminish the dis=
=eases of the others & you have no difficulty - the absence
of discharge is the ~~cine~~ presence of disease not itself an
idiopathic disease - the cause we know nothing of the Ovaries
young women are ~~often~~ subjected to this flow from puberty till it
ceases, monthly - it is usually expended on the Uterus
& this is essential if in other organs particularly if
Chronic Amenorrhœa ensue - the symptoms vary
with the organ affected - In young women it is often
directed to the head when Mania & fatuity at times
result - at times Epilepsy ensues - at times simple Hysteria,
the excitement not being permanent - Hysteria
is oftener caused by suppression than by retention &
these diseases (suppression) are very hard to remedy -
Pneumonia is also common as is Hæmoptysis - at times
the direction is to the abdominal viscera, the abdo
men is very tumid we have tympanitis - the diseases
of this nature are among the most anomalous I have
ever witnessed - The Treatment varies & is General &
Local - keep in view the organ affected - if the Brain use
local Bleeding by cups & leeches & apply cantharis
to the Uterus itself - leeches to the vulva - Pediluvium -
stimulating injections into the vagina & stir in the
internals to draw the organic irritation - Avoid Em=
menagogues which I apprehend render the disease
incurable particularly if the Brain be affected -
Plethora - At one time every thing was supposed
to depend on this, but it is only an adjunct & merits
no attention, only occurring from poverty of the sanguine mass -

Dysmenorrhœa.

In all cases caused by acute Inflammation of the uterus there are intense pain & Convulsions which cease not till the discharge commences. There is often a secretion of coagulable lymph like the membrane in Croup, but not uniformly. after the pain is diminished the patient has a discharge.

The remedies used for Amenorrhœa are called Emmenagogues & are very stimulating. From what I have said such medicines do not act positively, but are influenced by the state of the organ. Probably no class is more abused than this by indiscriminate use. nor is Schirrous of the Uterus a rare consequence of their administration during the existence of great irritation. a course of which Baylie approved.

Lecture 34th.

The medicines usually called Emmenagogues have very different modes of action. Some are General Stimulants or Tonics & the sanguine & nervous feel their action most. Some act on the Alimentary Canal & affect the Uterus by means of the Bowels, especially the lower Bowels. & thus act on the Uterus indirectly & some of those first mentioned are enumerated with these.

1st. General Stimulants. Savin, Rue, Pennyroyal, Rosmarinus officinalis, Saffron, Polygala Senega, Castoreum; most of these act by means of their general stimulant or Tonic powers.

The leaves of the Juniperus virginiana stand distinctly out.

When given for retention of menses it's results have occasionally been terrible.- Dr Barton mentions a woman whose difficulties had induced her to take Savin in order to prevent an increase of her family,- she did so, but her success was only accomplished with the loss of life.—

(A). Juniperus Sabina. Is a native of the South of Europe, not indigenous to but capable of cultivation in this country - The Juniperus Virginiana, has been used as a substitute in this country but is very inferior - The parts employed are the leaves & the essential oil; the leaves are small strong close like tiles, & imbricated in the stalk which distinguishes it from the common Juniper in which each leaf is distinct & not imbricated, but pointed & rounded - The leaves possess a Terebinthinate odour, a strong essential oil, a strong bitter acid taste, & are a very powerful stimulant, increasing the pulse, developing animal heat, & promoting all the animal functions, especially that of the skin & kidneys - Juniper at first stimulates the stomach, hence at times it produces nausea & the general system is affected through the instrumentality of the oil which enters into the circulation - The urinary perhaps fails its effects only as a part, nor do I believe the doctrine of some that it is peculiarly or specifically affected - it is said at times to produce strictures & has doubtless been the cause of abortion, for which purpose the with unequal success it is at times resorted to by females - they however are liable to gastric irritation & to a deterioration of the general state of the health - it is true that we expect a flow will follow this remedy - Dr Barton considered it at times a cause of Dropsical effusions & said that the patients sunk under Chronic Inflammation. In powder the dose is from 5 grs to ℈j 2 or 3 times per day & this is its most active form - It is also given in decoction, or rather in infusion - its active power is an essen

+ 3 or 4 times per day.

the oil of the fresh leaves is green, of the dried yellow. — Some cases where it destroyed life in Intermittents have been of late mentioned. —

Pennyroyal is a favourite also in suppressions, wh if slight it often restores. —

tial oil – The infusion is prepared by pouring 1 pint of Boiling water on ℥j of the leaves – The Extract is of little value, but the oil is frequently given – it is procured by distillation & is of a limpid citrine colour, possessing a strong Terebinthinate smell, but is usually adulterated – The Dose of the oil is from 4 to 12 & 20 drops; but from its great stimulating powers, it is restricted to cases which are marked by active fever, headache, pain in the loins &c, in which case from its exhibition we may fear hemorrhage will result –

(B) Ruta Graveolens – This is a native of the S of Europe & of the U.S. all parts, & especially the leaves, possess a volatile oil – its odour is strong & disagreeable, the taste is acrid – the volatile oil being less disagreeable than the fresh leaves, & operates much as Sabin, augmenting the heat, & secretions &c – it is said to be a specific on the Uterus but is correctly – said also to produce abortion – It is given in powder in the Dose of 10 grs to ℈j & in infusion in ℥ss in a pint of water – Dose of the Volatile Oil 4 to 8 or 10 drops – Dose of Infusion a wineglassful, bis vel ter in die.

(C) Rosmarinus Officinalis – Rosemary resembles the preceding than which it is less active –

(D) Most of the plants that yield stimulating oils have been passed in this department of the Materia Medica – These act only when there is a partial determination to action in the Uterus –

(E) Polygala Senega, has already been described – as an Emmenagogue it was introduced by Dr Hautshorne of this City & has gained some reputation which however I do not think will be durable – it is given usually in de

Only 2 of the 4 follicles are of any value, - the upper are smaller & shrivelled, - the larger contain each from ℥j to ℥ij of a fluid. The Rupain is Resinoid, the N. American is fleshy. - which we use is generally Canadian & other inert. Its taste is like that of musk. -

+ to this property its peculiar smell belongs. -

Afrafetida, Castor & Ammonia are occasionally united. -

cortex in doses as large as pepper - It is prepared by boil-
=ing 1 pint of water on ℥ss of the Bruised root for 10 or 15 minutes -
(F). Castoreum or Castor - Was once much celebrated & is very
analogous to Musk & is that part of the castor (an animal
found in the north of Europe Asia & America) contained in
4 follicles between the anus & pudendum - 2 of the follicles
are upper containing a fatty matter, & the 2 lower contain
an oil which soon concretes - in the shops we find them
connected by Ligaments - We commonly find the Russian &
the American Castor, the latter of which is very impure,
usually impure & soon becomes worm eaten - this may be
known by means of the 4 follicles being united - if good it is
brown in a bag divided into shelves & possesses a unctuous as
pect - its odour tho' fetid is not disagreeable but some
what aromatick - it has a peculiar property called
Castorine + - it crystallizes in long prisms - is insoluble
in cold Alcohol - soluble in Hot Alcohol contains an oil, very Benzoin, volatile
salts &c - It is given in substance 6 grs to ℈j or more commonly
in Tincture & is very nauseous - it is given in pills rubbed
in powder & is serviceable in case of Hysteria & of Hypochondria
Spasms of the Uterus. Tincture is often given. - Dose 20 to 30 or 40 drops

The preceding articles act on the genital system -
& most of the Drastick Purgatives will at times prove Emmena
gogues - (Have found Colocynth & Hellebore Senna & Jalap very good - when this
disease does not result from Chronic Gastritis. Senna ℥ss
℥ss Manna & Jalap 10 or 15 grs & Colocynth 10 or 15 grs form a good compd to which in case of
failure I add Colchicum -
(G) Aloes. This is now particularly prescribed of Reputa
tion & acts chiefly on the Rectum producing an Emmenagogue

The wine of Aloes is good when there is a diseased state of the chylopoietick viscera, provided it arise from debility.
+ The following is a good combination & analogous to Hooper's pill - viz - Rhubarb, Aloes, Jalap, Sulphate of Iron & Soap - Hooper's pill contains Camilla Albee - oil of Sabin being added to promote the mixture
+ e. g. The above Pill - the Extract is faultless.
1 or 2 grs Sulph: Iron & 3 or 4 grs Aloes are at times given as Emmenagogues.

Experiments have not as yet proved Ergot to possess any specific action over the Uterus, - it may accidentally do so. - There is no proper location in the Materia Medica for this plant. - Decandolle, the Linnaeus of the present day considers it a peculiar plant, but I confess it strikes me as greatly resembling the Rye, - it snaps short when broken & internally resembles an almond, - when recent & in large masses, or in powder it smells of putridity. - It's taste is bitter. - Water & alcohol take up all it's active principles. -

action either by communicating irritation to the Uterus, or by means of a medicine powerful - as an Emmenagogue it is usu=ally given with a Chalybeate, as Sal Martis.

(H). Helleborus Niger - says Dr Meade is one of our most decided Emmenagogues - The Root is seldom used, it being chiefly given in Tincture or Extract. The extract is mild & a good basis for other Emmenagogue combinations. The Tincture I believe is most usual - Dose 30 to 40 drops, 3 or 4 times per day, with which I have at times succeeded in bringing on an action of the Uterus.

IInd Direct Agents on the Uterus. This character belongs to most essential oils, & to the following articles. -

(A). Secale Cornutum. Ergot is by some considered as a species of Mushroom - it grows on the marshy countries of Europe - some deem it a diseased excrescence - others dis==eased grain - it is mostly found growing on Rye - its greatest thickness is at the centre, it is oblong & pointed, fi=rm, easily powdered, somewhat horny externally - of a violet colour without & a dirty whitish within - on the outside may be found two more longitudinal furrows - It is most prevalent in damp countries & most abundant in damp seasons - In Holland & parts of France this appearance of the Rye is at times so common that 1/2 of the Rye may be simultaneously affected - when the poor are compelled to subsist on such food, it produces an Epidemic disease which is called

1st. Convulsive Ergotism, this is a Tetanic affection in which all the muscles are convulsed & the lungs & stomach affected.

2nd Dry Gangrene - The ends of limbs are here affected with

+ cases are mentioned in which all the limbs have dropped off the body & the patient still survived for a few days — I have seen the bills of Drinks fall off in 15 days after they commenced eating it & they soon after died

A.D. 1560, this disease first became known in Germany. —

Of 120 cases which occurred in France in one year only 4 or 5 recovered.

+ in 8 cases out of 10 it contracts the Uterus. I doubt whether the Ergot injures the child, but great injury has resulted from its excessive use. I have known a child which was expelled by very violent contractions & was in a state of Asphyxia for an hour after Birth the Bones were so contracted as to have caused Ideocy, & violent spasm from the slightest cause. — it is still living & I suppose its Brain is chronically inflamed. —

Madder has lately lost its reputation in Rachitis. =

sensations of burning pain - & unless soon arrested the toes fall & limbs fall off at the joint. this is called Dry Gangrene because there is no effusion of blood or serous effusion - This disease some contest arises from the Rye, but I attribute it rather to a long use of diseased food - it is only in this way & never as a medicine that it has injured - Its medication has not been well examined - I have never known it produce the slightest excitement - Madame ——— says that in France it usually excites the pulse an effect which I have not noticed - it produces violent convulsive contractions of the Uterus without other disturbances - It is not then an Emmenagogue but is on the contrary used to arrest Uterine Hemorrhagy after Pregnancy - some physicians deny having been discharges after its exhibition - it acts indeed only on Muscular contractility - Dose in powder ℥ss to ℥ss - per 10 minutes till it acts - In Decoction ℥ss to ℥j in a pint of water boiled for 10 minutes of this a Table spoonful is the Dose. -

(B) Rubia Tinctorum - Madder is given in powder & is chiefly used as a Dye - it enters very minutely into the circulation & dyes the bones &c. to which circumstance was owing its reputation as a medicine - its fame however sunk after a little while but appears again to have improved - I have seen it given largely without effect & doubt whether it possesses Emmenagogue powers - It is given in substance but oftener in Decoction when suppression depends on Gastric Irritation, & perhaps may attend a long perseverance in its use - it has however no active operation —

leeches to the vribra,

I have now mentioned all the medicines usually given as Emmenagogues; but other means are resorted to as local depletion, by means of cups to the loins & groin, over the sacrum & inside of the groin, - leeches are still better, particularly if there be irritation in other organs - frictions to the lower extremities, loins & abdomen are serviceable & you should never neglect Pediluvium - also hot baths - & add salt to the water - of late stimulating injections have been proposed & are quite when there is atony of the uterus & excitement of other organs. Lavagna proposes Aqua Ammonia Pura, as an injection into the vagina - 60 & drops in ℥ij of milk, to be increased till you excite heat. I have tried this in cases of Chronic Pneumonia hastening to Phthisis Pulmonalis, but when the lungs are so much diseased as to render a failure a matter of course - I have however succeeded by this means to prevent a discharge - You should recollect however that our Aqua Ammonia is weaker than that of Europe - at times 20 or 30 drops may be given, but the best criterion is the heat experienced by the patient - Infusions of Sabine to 10, 12 & 15 drops may be used -

Lecture 35th

Stimulants.

The term "Stimulant" is very general, including whatever excites motion or action & thus embracing almost all the articles of the Materia Medica. But

in a Therapeutick view it is much more restricted & includes those articles capable of increasing the action of the vital powers - augmentation of the arterial action is very generally considered the standard of stimulation, but it is very evident that under this designation are included other systems (the nervous for instance which will be affected) - stimulants then are difficult to be defined - Their effects are also very different & to understand which we must pay much attention to their classification & arrangement - An examination of this nature first presents to our notice some remarkable for their rapidity & diffused action - they render the pulse more quick, develop animal heat, invigorate the mind & display very general effects - These have been termed Diffusible Stimulants - they produce intoxication or effects very analogous: in most systems of the Materia Medica articles not possessed of all these characteristicks are classified as Diffusible Stimulants as Camphor, Ginger &c - these are not like Ether &c in as much as they do not produce intoxication - their character is totally different, they circulate vigorous, but slowly, & their effects seem to start at the stomach & rather to produce an action sympathetick than general - These should be called Excitants & separated from the D. Stimulants - A third class of Stimulants increases the circulation & manifests other general powers, but acts more particularly on the Brain - these are called Narcotics - Another, appears to have an action somewhat modified from the last, & directed to the Brain &

they also operate on the fauces, olfactory nerves &c:- Intoxication is common to all except Ammonia,- which using them do not forget this volatile property which takes effect at a small destance from the Body,- in fainting &c this proves restorative.-

The action of the Alcohol is here modified by the other ingredients.-

Nervous System - When nervous influence is irregularly generated these produce tranquillity & have been called Antispasmodics from the property of allaying irregular action of the muscles produced by the nervous contractions - Some others after a few days have elapsed prove moderate general stimulants imparting vigour to the mind & Body & are called Tonics. All these classes differing indeed 'in se' are Stimulants, i.e. they add more or less permanent strength to the system & likewise have an important influence over the nervous system - these act gradually & retain their powers very long.

Diffusible Stimuli - As already remarked it is the character of these that their effects are instantaneously & widely extended, apparently operating the instant they have come in contact with the stomach - most of these are volatile & probably owe the rapidity of their operation to this fact - When no sooner is taken into the mouth, than it is volatilised affecting the whole system, even the Breathing, inflaming the Brain & at times has proved fatal - The action of these medicines is so transient that in an half hour they have lost their powers, & indeed the most diffusible being the most transient - The doses of these then are to be often repeated - The constituents of this class are Ammonia its carbonate, Alcohol & some of its preparations, as Gin, Brandy &c - (Wines can scarcely be ranked with these) the Ethers & their Pharmaceutic compounds -

Sherry, Madeira, Port, Claret, act slowly unless taken very freely & may be considered either as Diffusible Stimulants or Ex=

+ if diseased, the reverse occurs.

-citants - In administering diffusible Stimuli, we collect that you produce two effects which deserve to be studied -
1st The former is a direct action on the organ to which applied, (usually the stomach.)
2nd - While the latter is the general result produced from their admission into the circulation -

In administering these, bear this in mind - they are often indicated by debility in the arterial system & at the same time they produce Phlogosis of the stomach, a disease which may prove more detrimental than would a total abstinence from their use - this is a problem constantly occurring - here we may resort to other means (as injections) but which may be too inactive - In small doses (of Alcohol 3 drops or 60 alcohol 30 or 40) their effects are only local proving cordials, increasing appetite, & improving digestion if the stomach be healthy or feeble, but operating inversely if it be irritated - This accounts for the prejudicial effects of Bitters on the irritated stomach, which would rather be benefitted by cooling drinks - To understand the wide extent in which they rule it will be necessary to show the Phenomena they give birth to in the various organs - Their action on The Circulation, is most acutely felt - the pulse is always increased in frequency & often in force, & animal heat is developed - Hemorrhages too are induced occasionally, particularly if administered at improper periods: if given when there is excessive arterial action the consequences may be fatal Hemorrhage - if in a natural state the secretions & excretions are increased

The skin is warmer, & more red.—

From finding the effect produced in their brilliancy of Imagination by the use of these means, it has occurred that so many eminent men have become victims to Intemperance.—

This practice only proves successful in very local affections, - Eg, the Inflam^n of the Conjunctiva.—

(an effect especially visible in the Kidneys & skin) hence many Diaphoretics are diffusible Stimulants & we com=
=bine them with each other - After the Circulation The Brain, is affected - we all know that stimulants on this organ create hilarity & if taken in excess in=
=toxication - The nervous & muscular energies are at first excited & increased - & the subjects sing, leap dance &c - but is the action on the mind less, or less important - this is indeed more brilliant, & indeed many are only ca=
=pable of the higher mental enjoyments when under the influence of Bacchus - But soon the stimulus ceases, the Brain loses its influence the Muscles relax & a contrary state is induced - All these phenomena tend to prove that no organ is unaffected by the Diffusible Stimuli. We may compare their effects indeed to those of Inflammatory Fevers, increasing all the actions & generally the secre=
=tions, (as the sweat) or excretions. -

These remarks, having been premised we may discern their Therapeutick indications - They are of course incompatible with excessive action, tho' often indeed exhibited with impunity if the inflammatory process be limited to a tissue - here the excess of stimulation by inducing a crisis may effect a cure, but is a plan by no means safe. This accounts for the fact that Inflammatory fevers are at times successfully treated by Stimulants. thus the Brunonians who considered all diseases asthenic, were at times successful; still the treat=
ment is unjustifiable & may prove murderous.

What has become of all those malignant Fears of direful consequence which used to fill the works of Nosology? - Their character I believe can be traced to the abuses of this Treatment & proved not to belong originally to the Disease .. The term Typhus ought to be abandoned rather than used in its present loose sense - whenever you cannot bleed the Fever is denominated Typhus - In Europe it is a disease emanating from an aerial poison produced by large collections of people During the Siege of Paris by the allied Armies the Hospitals suddenly overflowed, the Wounds became Gangrenous & no relief could be afforded without removing the excess - There & in England, Remittents are called Typhus when the nervous functions are prostrated

The distinction between Congestion & Inflammation which precedes it should be well understood: if not dissipated it will destroy life, Death is at times preceded by a softening of the part at other by its thickening, or by its attenuatualization consequent on aberrations of the nutritive functions of the part - Typhus was originally a specific disease from a specific cause - if such a disease exist its name should be confined to it & we should guard against the influence of names which do not indicate

(vide p. 36

The question of the propriety of Stimulants in Fevers is one of the most puzzling the physician has to settle, & one as yet tossed upon the waves of Science. All of you in the course of your practice will meet this question - There is no one subject which gives me more pain & anxiety than when I find patients arriving at that period when this question must be answered - The difficulty is owing to a want of definition of direct & indirect debility - In direct debility immediately resort to active Stimulants, but in indirect debility they are murderous & destructive. I have often studied Patients in order to detect the marks but must confess that I have found out no certain rule - When however as Fevers advance, the pulse is fluttering, feeble & compressed, the skin cold, a cold & moist, here the ~~weight~~ weight of counter indications, to stimulants must we resort. Here the heart is directly sinking, tho' the other organs are in an opposite condition - By no fact am I better satisfied than that opposite excitements exist at one, one organ being very excited & the other equally debilitated - When the heart has not partaken in the excitement or is now sinking its action must be maintained or Death ensues - But there are other mediums for stimulating the heart besides the stomach - I would inject stimulants, stimulate the Body externally & administer internally the mildest stimulants in a mucilage to protect the Stomach. I should have before mentioned that the diffusible Stimulant

the disease of all Epidemic here is called Typhus, the its cause had in the beginning of the season produced Dysentery &c - The true cause is derangement of the Nervous System - there is no question but that there is a period in diseases when stimulants must be used, & this is when there is a state of congestion - when there is evidence of such a state of the internal organs stimulants are useful, but if we err in the time of giving them as we are very apt to do, much mischief results - to ascertaining the particular moment is very difficult - When simple Congestion exists with Consequent debility there is a quiescent Torpor, no muscular movements nor rigidity of the muscles which often exists when there is no subsultus Tendinum, the skin & muscles are relaxed, the pulse feeble, the tongue hard dry, with want of Circulation & all other secretions & functions - torpor - there is no diarrhea, nor vomiting, nor sea, nor Delirium - the eye is not injected, no convulsive - but the patient is hard to rouse - When ever we have agitation restlessness, pain, twitchings, or spasms, rolling & injected Eyes, muttering, Delirium diarrhea, vomiting, a hot skin tho' he is chilly, Irritation & Inflammation exist - I have rarely known such a case to exist wherein Stimuli have not done harm - The weakness of Circulation is often increased by Stimuli in such cases, & physicians often say that this proves their propriety, but if at the same time the nervous symptoms be aggravated of course it is detrimental by exasperating the disease of the Brain which is of more consequence than the other - In Early Bilious, Remittent & Continued Fevers stimulation is contraindicated - "Timor stimulantis" we are told "initium sapientiæ medicinâ.

+ The deaths in Baltimore in the same week were 45.

It is a common practice to give 3ss Ether with Laudanum, or Turpentine or Alcohol in the beginning of a chill in Intermittent Fevers, but even from this I have known 2 or 3 Cases of Apoplexy to result & also intense Gastritis

so rapidly as to have been detected in the Brain (Gin.) -
In the state just mentioned this is the proper course
& when it is necessary to use the stomach as a medium
if it be deranged we may blunt the effects of the stimuli
by prescribing Sago - But this Debility which seems
to indicate stimuli is a consequence of an excited Brain
& none of the diffusible stimuli affect the stomach alone -
When this debility exists from a suspension of
the Nervous power generally, I have found every
case, become gradually more aggravated till the
patient dies in convulsions or perhaps comatose,
these symptoms increasing with the administration of
the Dif. Stim.ts - In this state I am satisfied that
dangerous as it is in itself no advantage results
from these remedies - At times we have such
diseases in the Alms House (there have been none for
the last 4 years) & 50 or 60 persons are attacked
at once - at first we relied on the stimulant treat-
ment but with such ill success that in one day
we lost 42 patients !! This determined us all to aban-
-don it, & I am sure that much greater success
hath attended a directly opposite course -

Whenever there is from the Brain,
we observe the eyes are always injected, & are rolled
up into the corners or under the eyelids & the patient
unless awaked constantly rolls them up - when
this symptom is presented there is uniformly
Inflammation & Effusion on the Base of the Brain,
which may be anatomically accounted for by the

fact that the 5th Pair of Nerves is a little before the Tubes Annulari - & there is another proof - viz - the Respiration is very irregular - (the patient perhaps taking 6 respirations very fast & 6 very slow, in succession) - at times suffocation ensues - Dyspnoea, even when there is apparent convalescence & subsultus tendinum which cannot be mistaken - In the present case I have never known diffusible Stimulants prove salutary; other physicians have different views, I only state my own - When I speak of the different doctrines in Fevers I only wish to attract your attention to the subject, not to make you converts to my opinions - On the contrary I would advise you to believe no one in medicine - study diseases yourselves - analyze & trace them to their sources & if you find things as I have stated them, then only give credit to my opinions - In Intermittent Fevers diffusible Stimulants not unfrequently are good, but the Tonics are rather to be preferred (Æther & Laudanum are very good) before the expected chill - This course often succeeds but requires great caution for have less Apoplexy result - when it is not complete & there is complication with the Stomach this course is dangerous - When the last Intermittent prevailed Æther & Laudanum produced Apoplexy, & I was called to a patient but did not arrive till he was dead, in whom a fatal result ensued in 20 minutes! But for a freefat Intermittent it is

often Lerricable - In the different Remoses Diffusible Stimuli are often very salutary - here there is irritation of the nerves but which may be easily dislodged; most of these are of Antispasmodic Pills now effect a cure - But if generated in a sanguine Temperament Hysteria is always made worse & I am afraid that in one case I have perpetuated absolutely confirmed it when I should have resorted to a course directly opposite - this was the case of a lady possessing a very irritable stomach which stimulants rendered incurable - but to such mistakes we are all liable!

There is one rule in regard to the propriety of diffusible Stimulants in Fevers which hath been called a "Golden Rule" & is in general very good viz - "Whenever the pulse is slow & full the patient quiet & more composed proceed with them. But, if the pulse be contracted & full the patient restless & he have many jactitations change your course immediately"

Lecture 36

Particular Diffusible Stimulants.

(A). Volatile Alkali - exists in Nature as a gas, & is composed of 3 parts of hydrogen & 13 of azote by weight. is transparent & in the form of a gas with Alcohol. It is given Pharmaceutically with Water; it is called also Ammonia, Aqua Ammoniae &c - is decomposed by Muriate of Lime &

[t] is used in inguinal or Gout which has left the lower extremities

[+] on this subject consult Fontana.

[+] the apoplectic state which sometimes follows a debauch.

Quicklime - is colourless - of a peculiar, powerful & pungent odour - possesses a urinous acrimonious taste - if applied to the skin creates redness or if very strong an eschar, & has hence often been used as a Rubefacient or caustic, often producing an eschar in 15 or 20 minutes - In the shops its specific Gravity varies - in a given quantity in water, will be found from 7 to 20 or 30 per centum, - in this country the Dose is larger & I have indeed seldom succeeded with our Ammonia to raise an Eschar - its purity may be tested, thus - If you take 224 gr of water the same quantity of Aq Am: weighs only 216 - Internally as a diffusible Stimulant this is a very rapid & powerful remedy & is given in Syncope, in the low forms of Fever, when we have adynamia & in fact generally where other active Stimulants are given - it is deemed excellent by some in poisons produced by the bites of venomous animals, as the viper, the Rattlesnake &c - I know not whether its reputation is merited, it seeming at times to succeed & at others to fail - for poison produced by eating certain species of the Mushroom & in case of risings at the stomach & a loss of pulse after eating Pheasants out of season, Ammonia is recommended - a few grains have lately been said to prove a prompt cure for Drunkenness of which I have little doubt - I have seen the ill effects of Alcohol, Prussic acid &c on the Brain of animals counteracted by the Volatile Alkali - I saw a patient who for a year had consumed a quart of liquor, & in whom this at first appeared to produce Relief, but owing to the negligence of his nurse he was perhaps finally killed by too long continuing its use,

The oil of Dipple has by some been mixed with Ammonia but is horribly incendiary & has, I believe, been abandoned.

a fact will with your notice since it may prove a caustic as it probably did in this case on the mucous coat of the stomach - all symptoms of drunkenness however disappeared in this case, & the stomach post mortem was contracted so much that it would scarcely contain my fist - the stomach has indeed been said at times by intemperance in the use of this remedy to have been deprived of its mucous coat - The Dose of this medicine is from 18 to 20 or 30 drops & is most safe in a mucilage, or milk - here its direct action on the mucous coat is blunted without its losing its stimulant effects - if exposed to the air the liquor Ammoniae loses its Ammonia, or absorbs Carbonic Acid & forms Carbonate of Ammonia - if good it will not effervesce on the addition of an acid - there are several Pharmaceutic preparations such as with the aromatic oils, or with Antispasmodics - Lett B) Carbonas Ammoniae - does not exist in Nature but is prepared by mixing Muriate of Ammonia & Carbonate of Lime & exposing them to heat - a Sub Carbonate or Carbonate is thus formed which effloresces in the air - an addition of more of the Carbonate forms Bi Carbonate of Ammonia which is opaque & white & more fusible, whereas the former is transparent - The Sub Carbonate must be used if we desire a stimulant effect - In making Citrate of Ammonia we may select the soft powder - but in giving it alone Reject the soft white mass - The Sub Carbonate has a nauseous acid taste & acid smell but not so strong as the Carbonate - indeed in proportion to this quality is its excellence - the quantity of acid varies from 20 to 50 per cent - it is soluble in quadruple its weight of water -

+In Dr Chapman's Therapeutick's you will find so full an account of Carbonas Ammonia that it will be unnecessary for me to go further into detail.

insoluble in Alcohol which it precipitates - is decomposed by the fixed alkalies & acids - Its therapeutick action resembles that of Ammonia than which however it is weaker & it is used whenever diffusible Stimulants are indicated + - From its volatile nature, it is requisite to keep this medicine in well stopped bottles or it will absorb Carbonic Acid - It is given in Substance - in a Bolus 5gr to ℈j, usually mixed with aromatic powders - or as Emulsion with Gum Arabic - or which is most common in a Julep - (Gum Arab & a Syrup) - its purity heat will test - if good it is found to be perfectly volatile & the flames leave nothing behind -

(C.) Alcohol, is a transparent fluid, odorous, very volatile, has a hot pungent taste, burns with a bright flame & if pure without a residue - is not congealable at any known temperature its Specific Gravity is from 8.18 to 8.30 - it has been the very Rarely at 7.91 - Alcohol is the result of fermentation, especially of grapes or farinaceous seeds - it is separated by distillation - it was supposed not to exist in the fluid till Gay Lussac proved that it appeared in the act of fermentation - If from Wine the extractive matter be separated by acetate of lead, Alcohol & water are left - the dry Carbonate of Potash will take off the water & leave the Alcohol pure - this is properly the Spiritus Rectificatus of the London & Dublin Pharmacopeias - this is then to be again distilled - its Specific gravity is 8.35 to 8.40 - in the shops it is Rarely pure - All alcoholic liquors vary greatly in their strength, as Gin, Brandy, Wine &c - During the fermentation of the substances which enter into their compositions a certain quantity of volatile oil enters into combination & gives a peculiar taste to the liquid -

The moderate effects of Alcohol are not dissimilar to the first & milder symptoms of Mania.—

All the various liquors tho containing much the same quantity of Alcohol vary greatly in their effects - Its purity it becomes often necessary to test, for which purpose add to it some of the dry Sub. Carb. Potash - (200 grs to ℥j) & expose it to a red heat - The Potash absorbs the water - pour off the Alcohol & weigh the fluid, left in the Potash & you have the quantity of water - in this way you ascertain the percentage & may render it perfectly pure - Its chemical components are Carbon, Hydrogen & Oxygen - (29.88 of Carbon, 18.40 hydrogen, & 51.72 Oxygen) - Alcohol solves Resins, Gum Resins, Balsams, soaps, volatile oils, Camphor, Sugar, Tannin, Extractive - it is very extensively used in Pharmacy whose most common preparations are Tinctures of Alcohol or diluted Alcohol - In making Tinctures, pure Gum Resin requires pure Alcohol - Alcohol is seldom given pure internally but usually in Tinctures or in Wines &c. Of its preps. the Fermented & Distilled Liquors are Cordial & Tonic Stimulants - & if taken moderately invigorate & inspire hilarity - in the Physician's hands they are excellent means of invigorating the General excitement of the System at times seems an instinctive want - & in the course of 24 hours the actions are very different - at different ages they are sometimes required & in the whole history of man we know of no period at which Alcoholic liquors were not used or other stimulants - The Bible tells us that after the flood Noah became intoxicated & Homer's heroes on all occasions quaffed the bowl - his native Lowland savage is without its stimulants - Our Savage takes to tobacco, the Turk opium, the Russian quaffs, the Malay, each has his peculiar one - & injury results not from the use, but the abuse of Alcohol - The stimulant effects of liquors

The loss of life from intemperance is greater than from all the other miseries of life, even Pestilence & Famine included.

Rum destroys life sooner than Brandy. The Malay mixes Arrac with Opium & sometimes under the effects of this stimulus grows most furious.

+ these are most apt to nauseate.

+ The effects of Alcohol are very violent when it is given. A lad, an apprentice of my father, for a trick, put a bottle of Alcohol in the place of a whiskey bottle of a workman, & the consequences were fatal.

depend on the quantity of Alcohol contained in them & this varies from 13 to 25 per cent: but the action of the Alcohol in different liquors is modified by the oils &c with which it is mixed - each of its preparations has peculiarities - Brandy is the most cordial & stimulating - Rum excites the Circulation & develops Animal Heat - Gin is Diuretic - and affects the Brain producing Mania &c - Alcohol is best given through the medium of Wine - Wines however vary greatly tho' containing nearly the same quantity of Alcohol & are distinguished by their colour, odour & taste - they are divided into Dry, Sweet, & Sparkling -

α Dry Wines contain some Tannin - such are Madeira, Port & Sherry - they are more generous & Tonic - the Tonics with Stimulants, & this wine which combines these two qualities are good in Chronic Dyspepsia, which I have known yield to Sherry after all other Remedies had failed - Port is more stimulant than either of the others -

β Sweet Wines are less stimulant but more nutritive -

γ. Sparkling Wines are the most Stimulant & Diffusible - such are - Champagne, Rhenish & Hock - contain but little nutrition & their effects are evanescent: hence in low fevers if we would nourish, Port, Madeira &c are preferable -

I said that the extractive matters modified the Alcohol - Port & Madeira contain 25 per cent of Alcohol - Many persons take per diem in one of these 1 pint for years without much injury, whereas the same quantity of Alcohol in water would act very violently + - The effects of its combinations are often distinct from any known properties of the Alcohol, as is not seldom the case in the product of 2 medicines -

The Nitrate & Acetic are rarely prescribed, - in this country I believe never. -

Specific gravity 60° of Reaumur or 0.670 tho 'tis rarely found so pure. -

Lecture 37th

D. Ether. "Ether" is the generic name of several different liquids formed of Alcohol & the acids. There are 7 different ethers, all of which have this name, viz, 1st The Sulphuric, Phosphoric, Arsenic which compose a class in the composition of which acids do not enter but only modify the components & dispose them to enter into composition. 2nd The Nitric, & the Muriatic, Acetic & Fluoric which enter into the Ether itself. The articles of the former class are nearly synonimous, whilst those of the latter all vary in consequence of the acid in the composition.

The Sulphuric Ether is the most common in medicine & is that which is entitled to the name of 'Ether' having been first discovered & received the appellation. When in common parlance we speak of Ether we usually allude to the Sulphuric. It is obtained by the distillation of equal parts of Sulphuric Acid & Alcohol in a gentle heat till 3/4 of the whole passes over. In the first product there is Sulphurous gas and at times Alcohol together with the sweet oil of wine. It is then always impure, & is to be rectified by a redistillation from Muriate of Lime carb Potash: magnesia & lime in order to free it from the water. proposes Potash as a new for this purpose. This is a colourless, very volatile aromatic odour & so light fluid that it floats on water. is volatilized at 35° & dissipated: if pure & highly concentrated it is volatilized before a drop can fall 4 or 5 feet. much cold is given out during its volatilization. Enough to freeze water. a property not neglected in medicine when it is resorted to as a local application particularly in Strangulated Hernia, the tumour being rubbed with Ether the evaporation produces a contraction of the Bowel. Ether is soluble only in 10 times its quantity of water. it is the active solvent of fats, oils, volatile oils, pure resins, the

+ Some 6 years since it was the habit to administer the vapour of Æther at private parties, but proved fatal in several cases - it excited violent inflammation of the Brain & destroyed life in 2 or 3 days - it also gave birth to intense Pneumonia, as occurred in a lady from whom I extracted 100 ℥ of Blood, & fortunately with success -

+ One young lady who took large doses had the mucous coat of the Stomach quite destroyed

In Dysmenorrhœa, large doses of this & Opium afforded quick relief in a very terrible case (3 or 4 drops with 30 or 40 of Laudanum.)

+ I have at this moment under my care a lady suffering from Gastritis who recovered for some time by means of æther, but had the disease increased in consequence of eating too plentifully of fruit this summer - together with nervous

resinous principles of cantharides &c &c - The Chemical composi-
-tion like that of Alcohol is Oxygen, Hydrogen, & Carbon - or 2
parts of Olefiant Gas, & 1 of Aqueous Vapour. Taken into the stomach
Æther augments the Heat & produces the other phenomena caused
by diffusible Stimulants - Its action on the Brain is very
powerful & excites intoxication - the same results attend
the exhibition of the vapour. In cases of Catarrh it is often
good to inhale small quantities of Æther, for the purpose of
stimulating the Mucous Membrane & the production of Expectora-
-tion - It is used as a medicine whenever a prompt stimulating
action is required as in case of fainting, & in case the patient
cannot swallow it, may be inhaled - (I have seen a teaspoon-
-ful held over a candle under the nose overcome fainting.) In
Convulsive Asthma it is very good in large doses (at times ℥ss -)
Alibert cautions us to be careful in the use of this on account
of its severe action on the Mucous Membrane of the Stomach.
In a case of my own where I gave it very largely it was
successful & 12 months have elapsed since the disease appea-
-red, but it is probable that at first too copiously it may
affect the stomach & impair Digestion - Hysteria if purely
nervous is very speedily relieved by this Remedy, but if dependant on
a sanguine irritation of the Stomach as happens often in Nervous
individuals & is indicated by nausea, convulsions &c which you might
be apt to consider very alarming, tho' æther relieve the nervous affec-
-tions it aggravates the condition of the stomach & renders more frequent
the paroxysms. These complications of disease are very common -
if simply nervous irritation instantly give æther - but if accom-
panied by Inflammation of the Stomach it invariably fails -
The best mode of administering Æther is in a Syrup:

dis adv - a recurrence to the other induces the Paroxysms - & the Difficult Stimulants all produce more intense distress of the stomach & fever - nothing succeeds but injections of Laudanum & flaxseed - Gelatinous soups - Chicken water &c. How long this state of things will continue I am ignorant, & tho' other relieves for a few hours it is followed by acute pains.

+ to the Pit.

Ol: Terebinth:

insoluble in water.

if pure, or with water, from its extreme volatility it is instantly changed into vapour & the patient is so nearly strangled that he cannot take it. These effects are partly avoided if taken in a syrup, but which should be rich & thick. The common dose as an Anti spasmodic is from 5 to 30 drops - but in Convulsive Asthma much larger, I have seen given ℥ss - at times Æther is impure - if Sulphuric Acid be present it reddens Litmus - here add a solution of pure Potash. Alcohol's presence may be detected by the addition of water, with which it will unite owing to its great affinity thereto. It is only when perfectly pure that it solves caoutchouc. There are several preparations of Æther, e.g. Spiritus Æthereus Sulphuricus, which is merely Sulphuric Æther & Alcohol, & also the Comp'd Sp. Æth. Sulph or "Hoffman's Anodyne, which contains equal proportions of both these ingredients & ℥ij of the sweet oil of Wine. In the distillation of æther, a sweet oil passes over called the Sweet Spirits of Wine, whose presence is known by the milkiness produced if poured into water. This is prepared in imitation of Hoffman's anodyne which it is supposed, but not known to closely resemble, for Hoffmann left behind him no formula for its preparation.

(E). Turpentine has lately been introduced among diffusible stimulants & possesses in a certain degree the character of a volatile oil. The spirits of Turpentine are procured from common turpentine by distillation with water, the Turpentine passing over. It possesses a strong odour, a pungent hot bitterish taste, is soluble in 6 parts of Sulphuric æther & in hot alcohol but not in cold - cold alcohol destroys its unpleasant taste. It has only lately been used internally and located with

By passing it thro' a stream of Muriatic acid an artificial Camphor is formed differing only from the other in not forming Camphoric acid with Nitric acid, - page 71. - q v. -

= in 10 or 12 years among diffusible Stimuli & chiefly in the United States - of its value as a Diffusible Stimulant in the low forms of fever & the last stages of Yellow Fever, experience seems as yet undecided - For myself I by no means favour the practice, having seen some cases of Yellow Fever indeed favorably impressed by it, but in far the more cases the disease was aggravated, the patients complained of uneasiness & all their symptoms became worse - in the cases where it succeeded I remarked a cold skin a feeble pulse, & a disposition to faint on rising from the pillow - but when the skin is hot, there is nausea, great agony & no disposition to faint it is very prejudicial - One of my last patients to whom I administered Turpentine sore he would not take any thing more, & resisted all medicines after the Turpentine, so great was the disgust & distrust it produced - A young woman who took it declared in the greatest anguish that it felt like fire from the mouth to the stomach - Great is the difficulty in all forms of fever in the use of Acute Remedies to determine the state of the stomach - if Inflammation have totally subsided & there be only weakness, they are all good, (as Peppermint, Vol Alkali, Brandy &c.) but in an opposite state they are very. In the low forms of fevers of a Typhus character, they have been very generally given, but are much overrated: a few years since in almost every case in the Alms House they were followed by a fatal termination - 1 or 2 cases were cured & 1 of which is still living there - the majority however were decidedly injured by the Diffusible Stimulants & Turpentine - In some of the Neuroses especially in Sciatica this has been very good -

+ tis equally good in cases of Lumbrici & destroys these animals, thus proving itself to be a real anthelmintic - patients are apt to imagine they have worms when they have not. - females are particularly apt to be thus affected & generally have at the same time disease of the Uterus; in one case I met with a polypus of the Uterus. -

After being worked tis best given perfectly pure. -

Warm, pungent, not dis-agreeable taste, & aromatic odour, some say its colour is derived from contamination in the casks, but this I have reason to doubt, - it is apt to be counterfeited by Spts Turpentine & Camphor, coloured with Cardigris. —

within 3 or 4 years the Worms have abounded in cases which yielded to large doses (℥ij a 4, 5, or 6.) The Tri Doubout Remy has also often yielded but not always to Turpentine which however is still as good as any thing else - As an Anthelmintic it is very good, perhaps our best, probably most certainly destroying the Tænia which resists so many applications - here ℥j of Ether to ℥4 of Turpentine may prove salutary - acting as a powerful Purgative & as a general stimulant also, but which last is unnecessary. Biliary Calculi have been said to be soluble in Turpentine but which I consider doubtful - Dose in as a Diaphoretic 10 to 30 drops - as an Anthelmintic ℥ss to j - as a Diffusible Stimulant ℥ss to j - it is given on water but is very unpleasant, irritating the larynx & fauces like Ether - it is best as an emulsion in the yolk of an egg, or with Gum Arabic - Diuretic 10 drops. -

(F). Melaleuca Leucadendron - "Cajeput Oil" is frequent on the mountains of Amboyna & other Molucca Islands & in Borneo - its reputation in China & the E Indies is very great - it is very costly in Europe & this country & appears a finer species of Turpentine - is obtained from the distilled leaves - is usually green which is attributed to the copper casks in which imported, but is if pure colourless & transparent - it has an agreeable Camphorous odour - it is very volatile & inflammable - the test of its purity is said to be to rub a little on the eye or cheek & it will produce a peculiar sensation - this is only the effect of volatilization - owing to its high price it is often adulterated - many think it possesses the properties of Turpentine, than which it is more rapidly diffusible &

more agreeable - it increases vigour, heat & most of the secretions. It has great repute in Gout & particularly in Rheumatism, but I know not that it is better than Turpentine - Dose 10 to 30 or 50 drops - this costs $10 per ℔ & Turpentine 10 or 20 cents! —

(c) The Volatile & Essential Oils, are very numerous & possess all the properties of Diffusible Stimuli, maintaining an energetic action on the economy with more or less diffusibility - but they differ in degree & are rarely given as diffusible Stimulants, but usually disguised or counteract the action of other medicines - they consist of the proximate principles of vegetables, are highly volatile - most are concrete - they are lighter than water except a few - as oil of Cloves - they have a lively odour, a very hot taste, at times proving even Caustic - It is these volatile principles or oils, which render plants Fragrant - generally they are simple principles, but sometimes compound: most of them contain Camphor & if which be dear, it may be procured from them by exposure to the air - all are partially soluble in water in water - hence we have Distilled waters in Pharmacy - but these are obtained by rubbing the volatile oils with Magnesia by means whereof you form a distillable liquid - this is very convenient in prescriptions. It is indeed very necessary that you should study pleasantness in your medicines as well as efficacity - this point is too much neglected here, but is carefully attended to in Europe & the patients will often prefer one Physician to another if he attend to this - The Volatile oils are often adulterated - at times with fat oils, at times with Alcohol - the former may detected by dropping some on paper & exposing it to the fire - if it be pure no stain is left & there is no oil - & if the stain be left there is an oil -

If it be suspected to contain Alcohol, add a little water & if a milky appearance be produced your suspicions were well foun=
=ded - When adulterated with Spirits of Turpentine there is no certain test, but it may be usually ascertained by pouring some on a cloth & exposing it to the air - if Turpentine be present the odour will usually detect it - but this is by no means a certain test - In small doses Volatile oils excite the Stomach, transmit a general warmth, expel flatus & prove cordial - most cordials which are only contain these in Alco=
=hol - In larger doses they inflame the stomach & even destroy the Mucous Coat - Many deaths occurred in the late Inter mittents of which the following is an example - A teaspoonful of the oil or Tansy was given to a woman who had a chill & killed her in a few hours - These oils may be joined with the Diffusible Stimulants when requisite - Besides their gene ral effects of Diffusible Stimulants each of them is said to have some peculiar properties - Some are deemed cordials as Annised Caraway, Fennel & expel flatus - others are Reckoned Carminatives - e.g. Peppermint which is very excellent in windy cholic & than which in this disease there is nothing which more purely expels - Papaper also is good - (the oil) - Sage, Thyme, Savin &c have been owing to their supposed action on the Uterus associated in rank with Emmenagogues - This is probably enough in regard to the Volatile oils - I shall add that they are usually given as adjuncts to improve the Taste or produce excitement but are Rarely exhibited alone -

Lecture 38th

I. Excitants.

Between this class of medicines & the Diffusible Stimulants no specific alteration exists - they differ chiefly in degree, but the variety is sufficiently great to render just their division into classes - Like the other class, these also increase the actions of the System (as the circulation, secretions &c) & at times even influence the nervous System - but they act more slowly & only when long reiterated & continued - From Diffusible Stimulants they differ by not producing intoxication & in propessing an action on the Brain & Nerves less energetic - The Excitants are very numerous, composing indeed, a class into which most articles of the other classes of the Materia Medica, might not improperly be admitted, for they might acquire the same powers from accidental circumstances - All medicines possess but one general property or Positive faculty which is their Excitant or Stimulant effect, as is the case with the Emmenagogues, Diuretics &c which possess only in themselves the power to produce a general or local excitement & depending on accident to direct their powers towards particular organs - In regard to the Physiology & Therapeutick Employment of Excitants it is needless to enter into the minutiae, what we have already said of Diffusible Stimulants applying also to them - the two classes are used very similarly -

Particular Excitants.

(A). Camphor: is at times classed with Narcotics, but its effects on the Brain do not deserve the title, for the holding authority over this organ narcotism is never a result of its administration -

Although most parts of the System feel & acknowledge its influence Camphor's Physiology, & its character & effects are "adhuc sub judice" - It is a particular substance once thought a Gum Resin, but is in fact a proximate principle of several plants - its name it owes to the Arabs, for it was unknown to the Greeks & we cannot tell when it was introduced into Medicine - To Aetius it was known & familiar to Paracelsus & to whom we are indebted for the intelligence that it was employed in his day - Camphor exists in many indeed in most volatile oils in a greater or less degree - In Commerce camphor is found to be the product of 2 plants viz - 1st Laurus Camphora - This is a native of China, Japan, & some of the Islands of the Eastern Archipelago - it is extracted from the leaves stems & stalks of the plant which are submitted to ebullition, till an oil swims on the surface which adheres to a stick if introduced - they are cut up fine & put into an alembic whose top is filled with straw: this sublimes & concretes on the straw, in which state it is imported crude Camphor in small greyish particles, containing more or less impurity, & which is refined previously to its use in Medicine - The process of "refining" was at first known to the Venetians only, was learned from them by the Dutch from whom we long obtained it, but within the last 30 years has been discovered by the French the English & our own chemists - it consists in submitting the crude Camphor to the air & sun in order to deprive it of moisture, & of then sifting & mixing it with 1/16 part of Carbonate of Lime in order to retain the oil of which it is possessed: this mixture is to be put into globes of Glass, or, (which are cheaper) into iron

upils whose tops screw on - the heat of a furnace is to be applied for 12 or 14 hours & the Camphor sublimes on the upper part of the matrass - the only difficulty in this process consists in the proper regulation of the heat: but it is not necessary for me to go any further into details on a subject which to describe is rather the province of another professor - In this state Camphor is in a white, crystalline, semitransparent mass, is brittle, lighter than water, inflammable, (burning with a blackish flame), & of a peculiar odour, & acid, biting, pungent taste - it usually crystallizes in the form of octahedrons & is in masses which are usually laminar - it is nearly insoluble in water, (Zj of water takes up ℞ gr) but soluble in Alcohol, Acetic Acid, The Mineral Acids, The volatile & fixed oils - water precipitates it from Alcohol leaving the solution unchanged - the insoluble in water this may be counteracted by adding 1 part of Magnesia to 8 of Camphor - it may be suspended in water by means of the yolk of an egg or a mucilage of Gum Arabic - Analysis detects in Camphora Carbonized volatile oil - If Muriatic Acid Gas be passed thro' the oil of Turpentine it is found to possess most of the properties of Camphor, which may be thus artificially procured when it is very expensive - after subsiding it is hitherto & cannot be distinguished from the genuine, except that it does not yield Camphoric Acid if distilled with Nitric Acid - All the Camphor of this country is the product of the Laurus Camphora - but there is another species - viz.

2nd Dryobalanops Camphora, which is a native of Borneo & yields the Camphor used in the E Indies which is considered very superior - when this tree is young it contains a volatile

+ To this rule the moth is an exception.

oil which concretes in cavities of the trees from which it is extracted at the age of 7 years in masses of 2 to 3 feet in length & several inches in thickness - the natives ascertain its maturity & having picked it out wash it with an alkaline solution - First, from the existence of Turpentine in Camphor & Secondly because the addition of a volatile oil converts Turpentine into a Camphor, it is not improbable we might succeed in obtaining it by the addition of a vegetable oil - There has been considerable dispute in regard to Camphor's Physiology, some reckoning it a Sedative, others a Stimulant or diffusible Stimulant - numerous experiments for ascertaining the truth have been instituted, both in insects & men, as well as other animals - the vapour destroys most insects + - The testimony however is various - Alexander an intrepid experimenter of Edinburgh took large doses & found them to diminish the pulse's frequency, whilst small doses excited it - On the whole I deem it an excitant or Stimulant, but there is certainly much obscurity in regard to its effects. Taken into the stomach in small doses it first creates heat in the mouth & stimulates the Mucous Membranes - creates burning in the stomach & often excites thirst - The pulse is generally quicker tho' not uniformly - Camphor has been compared to Opium in some respects, which also occasionally retards the pulse; it is common to them both to create a general disturbance thro' the System - Camphor often increases the secretions - Its action on the Brain has been variously described - in some persons it creates excitement, & even causes drowsiness resulting from Sanguine Congestion - As to its practical employment - we find it given as a Stimulant

The late Prof^r Barton used to tell some cases of this kind, in one of which where the disease was located in the shoulder a metastasis was produced to the heart, & death ensued in a few hours -

in fevers of a low type & particularly when there are nervous Retchings, Subsultus Tendinum & general nervous disturbance I am not familiar myself with its importance in fevers in which the Skin often sees it given, it has been administered in very feeble doses - (the watery solution which contains as I said before only gr ss in ℥j) - In Typhus where there was a convulsive action of the Muscles, I have seen it more freely exhibited but never saw it produce any soothing effects, on the contrary usually proving fatal - In Intermittents I have known it given in large doses with the design of disturbing the system generally, a notice to be obtained by any thing - In Gangrene it is highly spoken of & is to be given in the largest doses, the object being to give as powerful a Stimulant as possible - Rheumatism is often cured by its external application, which is very common but not equally safe - in acute Rheumatism situated in the joints or Muscles we must be careful lest we should produce a metastasis on more important organs. The Neurose affections are the ones in which it is very highly extolled - as Hypochondria, Hysteria & Epilepsy - in Hysteria it probably may do good, but Epilepsy knowing its Pathology I should fear it would injure - The Doses of Camphor depend on the view with which it is administered - as a Diffusible Stimulant or Sudorific, give 3 or 4 grains per every 2 or 3 hours, in Intermittents, or in Gangrene, give the largest possible doses - Cullen gave ℥ss in 24 hours - you may give ℥j or ℥ss of Hoffman's Anodyne - In substance Camphor is given in powder or in a pill with Sugar, or may be

suspended in an emulsion of Gum Arabic - or in water adding 1 part of Magnesia to 8 of Camphor - it is quite soluble in Milk or cream, & this is one of the best methods of administering it - it even unites with the curd of milk when Magnesia is rubbed & dissolved in water it enables the water to take up Camphor (a curious fact never satis= =factorily explained) - as an Enema ℥ss to ℥j may be given, & the best vehicle for which is milk (℥j viij) When Camphor is applied to Gum Resins it renders them very soft & which may be turned to a good purpose in adhesive plasters - It is used as a liniment in Rheumatism & is mixed in oils, Alcohol, Acetic Acid, Ammonia, Turpentine, Laudanum &c & it is often very useful not only in Chronic but also in acute Rheumatism leading to inflammation of the ab= =dominal viscera - here we often have acute Enteritis. Mixture a Camphorae which is very good consists of ℥j in a pint of water suspended by Sugar &c - The Spts of Camphor contain ℥j in 1 pint of Alcohol - There also are The Compound Tincture of Camphor, Paregoric, the Liniment of Camphor & the Liniment Saponis (which contains Soap, Camphor & Alcohol - To this Opodeldoc is similar, but contains more Camphor & soap & is hence solid - the Aromatic oils are also used as the Cajuaryth.

(B) Phosphorus - This a peculiar body very inflammable & supposed to be purely an animal production. Brandt discovered it AD 1660 - Boyle in England & Kunckel in Saxony also described it - Schele who first discovered it in Bones procured a better species than that produced by Urine There are seven methods of obtaining it - The first is to powder Calcined bones & digest them in diluted Sulph=

=uric Acid; this combines with the Lime (of the Bones) & forms Sul=
=phate of Lime in precipitation & you have remaining in solution
Super Phosphate of Lime - this, precipitate, with Nitrate of
Lead & you will have formed Nitrate of Lime & phosphate
of Lead - put the Phosphate of lead in a crucible, mix with
it a little charcoal & apply heat - the carbon decompo=
=ses the calcareous earth & you have Phosphorus, whose inflam=
=mability requires that you should pass it through water -
In this state it is to be melted in soft bathes dipped into warm
water & cast into moulds - it is nearly transparent, volatilizes
& inflames at 90° Fahrenheit, is insoluble in water
& nearly so in Alcohol - Acetic Acid takes up a little
as does also Ether - it is soluble likewise in the Volatile Oils -
its taste is uncertain - Soon after its discovery Phospho=
=rus was employed as a Medical agent & was rapturously
spoken of by its advocates, who ascribed to it even the
powers of "Redivescency" - but fatal consequences very soon
followed its exhibition, all its prospects were blasted & it was
expelled from the Materia Medica almost as quickly as
it had previously been introduced - Within a very
few years its fame has revived with pretensions nearly
as great as formerly, which renders it proper that you
should calmly & dispassionately investigate its claims
to your patronage - If its effects on the System be exam=
=ined it will appear that it excites the Genital Organs, a
fact first noticed by Pelletier, who found such results
displayed not only on himself, but also on a Drake
&c, with whom he experimented - Le Roy who also took
Phosphorus, (as much as 3 grains in different doses) felt in

+ query, – how long?

+ In one case, this commenced in 25 minutes, & was succeeded by great pain, thirst, convulsions, chills, pallid lips, prostration. + Death in a few hours –

2 hours, heat at the stomach & thirst, which he relieved by cold water, his urine was high coloured & his muscular powers invigorated on the subsequent day. Pourland experimented, & after he had taken 2 drops of Phosphorus early 2 hours, was at first nauseated, & subsequently found his strength to be augmented. other writers give similar, as the results of their observations. Probably in small doses Phosphorus is a stimulant, irritating (if too long applied) the stomach exciting nausea, thirst & even fatal inflammation. if taken in large doses, or into a susceptible stomach, its action is very powerful - almost poisonous, & indeed many cases of poison from Phosphorous are on record. Several writers among whom are Lochenstein & Lobel who have judiciously written on the subject conceive that this has been the Result in Epilepsy. other authors unite with these & even all writers so candid as would doubtless have meet similar testimony. In nearly all cases of fatal terminations there were intense inflammation of the stomach & Bowels, even holes through the stomach & mostly the Mucous Coat was destroyed. says that internally it produces a complete combustion & that Phosphoric acid is given off, or which we may conclude that its effects depend. it becomes often concentrated on a point & hence burns holes &c. Phosphorus having then no direct action except that of pure Caloric & the formation of Phosphoric Acid, should be abandoned. In substance (which is the worst way as much as it becomes concentrated on a point) Phosphorus is given in Pills or Bolus. 1/16 to 1/8 of a grain. It is more usually

+perhaps Diploë.

+Piper Cubeba

administered in suspension or solution - Ethereal Phosphorus is usually given - it consists of gr 4 ps in ℥j of Ether completely saturated -- Dose 5 to 10 drops -

There is a still more incendiary animal oil The oil of Dippel+ which possesses the burning properties of Phosphorus & is procured from bones - this is given in the low forms of fever & in putrid fever in few cases success has attended its administration, but not in enough to justify its use - I only saw it given in one case which terminated fatally - nor do I consider it more safe in Epilepsy - Upon the whole I advise you neither to use this or Phosphorus -

Lecture 29th

(C.) Cubebs+ - This is a species of pepper, a native of Java & the Philippine Islands & bears berries like Pepper which are round, black, & wrinkled - it is distinguished by a small elongation whence it hath derived the name of Piper Caudatum - it contains a white & oily nut which holds much essential oil capable of being separated by distillation, & a resinous matter analogous to Balsam Copaiba - its taste is hot & aromatick - it also contains a coloured Resin, a Gummy matter & an extractive principle - it has 4 external coats - & is less pungent & aromatick than common Pepper - it had fallen into disuse but was again revived within 6 or 8 years - In the E. Indies the native physicians treat Gonorrhea with Cubebs & from them the British E. I Doctors learned the practice & found it often successful

It has of late made some noise in the Journals & has been very extensively used. I recollect when it could not be sold for 8 cents per ℔ & it has lately commanded $5 per ℔: Cubebs is now principally used in Gonorrhoea in which obstinate disease every plan of cure has at times failed - no disease has given rise to more experiments for the discovery of a specific, but all researches have failed & I believe the hope of success will prove delusive. In fact Gonorrhoea is a simple inflammation of the mucous membrane of the urethra, or 'Urethritis' - At times it is caused by a specific virus, (as happens in Syphilitic Gon.) but if it occur in a secreting surface there is no ulceration - but it may be caused by any irritations, & by all acrid injections - I have known it the consequence of drinking an excess of Porter - I consider the proper management of this disease to be directly sedative - it is a disease difficult to cure & perhaps every Physician will consider this the most troublesome one he meets with - but much of the difficulty arises from the unwillingness of the patient to submit to a proper & strict regimen &c, & his rarely consenting to go to bed, to give up his business &c - Among other remedies, have been tried powerful excitants on the Stomach & Alimentary Canal - e.g. Balsam Copaiba & Cubebs - both of these however have principles which pass by the urine & this property may have its influence - they also affect Mucous Membranes generally - probably too they act as revulsives by means of their irritation on the Alimentary Canal - hence the disease is most easily cured when there are colicky pains - On the whole I consider that in the internal treatment Cubebs is probably the most successful remedy I

* It ever contains Red oxide of Lead, & usually the Sanguis Draconis & Murias Soda -

have employed, but like that of all other Remedies, its success is not invariable - I generally give the B. Copaiba & Cubebs together - the largest dose is ℥ss to ℥jss ij - sometimes the Stomach rejects it but it is preferable to B. Copaiba as being less offensive & irritating - the irritation produced on the Stomach by a long continuance of the use of B. Copaiba is one of its worst effects - it also produces indigestion & a train of morbid symptoms not elicited by the Cubebs - In Substance Cubebs is given in Tincture or Volatile Oil - in Substance put ℥j of Powdered Cubebs in ℔ss ℥ij of Syrup - Dose a Table-spoonful per 3a 4 hours - or ℞ ℥ss B. Copaiba, ℥ij Cubebs, in ℥viij Mucilage of Gum Arabic - & you may add Spiritus Dulcis Nitrosi ℥ss - The most direct cure for Urethritis, is poulticing or cold applications - in regard to poultices it is curious that they sometimes aggravate but not often - you should subsequently apply half a dozen leeches to the base of the glands, near the frenum & along the Urethra -

(D) Capsicum Annuum, or Red Pepper is a native of both the Indies but grows in our gardens - when powdered it is used as a condiment. it is at times sophisticated - During the late War almost all in the Country was factitious - It possesses an aromatick odour & a hot taste - water acquires its properties, but less perfectly than Alcohol - The Ethereal tincture if evaporated leaves a Resin which possesses most of the properties - It is a pure & powerful stimulant, but does not greatly excite the Arterial System - unless the stomach be irritated (in which case its operation is reversed) Capsicum invigorates the appetite & Digestion - In Intermittent Fever 'tis united with Cinchona - It is excellent in Cynanche Ma=

+ As a gargle try this - ℞ Pepper ℥j, Salt ℥j in a paste - add Boiling Water ℥vj & ℥iv of Vinegar - if irritation be very intense, the fauces black &c, give a stronger decoction - as ℥ij in 6 or 8 ℥ of water -

+ Piperine is prepared as follows - ℞ - 1℔ Black Pepper bruised: digest it with a gentle heat in 3℔ Alcohol at 90°: boil it for 15 minutes after this - let it stand till cool - decant, & reiterate the process with new Alcohol - unite the two Tinctures & pour in 2℔ water & ℥iij Muriatic Acid - the liquor becomes turbid & a deposit of a grey colour settles - this is to be separated by filtering, after which the piperine settles on the bottom & sides of the vessel & by adding more water till the liquor is no longer turbid, a new quantity is obtained -

ligna whose vitality is soon diminished & Mortification com-
-mence, the worst cases rapidly yielding if it be taken as a
gargle, or internally - as a gargle that has in a few hours
completely relieved threatened suffocation - as a gargle it is
good in the first stage of Cynanche Tonsillaris + - In
substance as Pills give 5 to 10 grains - The Tincture is composed of
℥ss Capsicum in ℥viij of Alcohol digested for several days.
Dose ℥ss to ℥iij -

(E). Piper Nigrum. Is an East Indian production cultivated
in Java Sumatra & Malacca of which it constitutes the
chief riches - it consists of round blackish berries, has an aro=
=matick odour, an hot taste - water takes up much
of & Alcohol all its active principle - this is stimulant
& Carminative & as well as Red Pepper is often given in
Atonic Gout. Dose 10 grs to ʒj - Pelletier discovered in
it a principle called Piperine + - it hath been lately
used in Intermittents in Italy - it is much spoken of in
the journals & said to be even of more efficacy than Sulph
-hate of Quinine, but is not yet introduced into the U. S. tho'
it merits a trial - If digested in Alcohol a fatty matter
will be extracted, which submit to boiling water till it
have lost its colour - add Alcohol to this & in a few
days a map will settle which is Piperine - Dose of this 1 grain -
I advise some of you to try it - its economy is important.

(F). Piper Longum was formerly used but is not at present
its length is ¼ inch or 1 inch - is a native of Malabar & Bengal,
consisting of many small grains imbedded in a fatty matter
it soon becomes hard - it is very pungent & contains Piperine - en=
=ters into the Confectio Opii & Confectio Aromatica - it is

substitutes for the Black Pepper

(G). Amomum Zingiber - Ginger is a native of the E. Indies which has been naturalized in the W. Indies whence we derive more. There are two kinds 1st the white which is washed & dried & only differs in this way from 2nd the Brown - the root should be solid & not worm eaten - it has a pungent aromatick odour, a hot taste, & contains a volatile oil which passes over on distillation - The tincture retains all its flavour without its pungency - Ginger has besides, an extractive matter most of which is starch - is a warm Stimulant & Carminative often given for flatus - In dyspepsia where there is atony of the Stomach it proves salutary, is an adjunct to Tonics, enters into many preparations, & in short acts much like the Pepper, & has been ranked like most of the plants among "Excitants" -

(H). Eugenia Caryophyllata, Caryophyllus Aromaticus. Cloves - Cloves come from the Moluccas & all the Dutch E Indies, but from policy were destroyed in all except Ceylon - they have since been cultivated in Dominica of the W Indies - Cloves consist of the plant's unexpanded flowers & leaves, all of which are aromatick - The Buds are pulled from the stem just before expansion, are immersed in Boiling water, then subjected to smoke & heat - when Brown they are fit for commerce - The Arabs were the first to use Cloves, but they are common now throughout all the E Indies - they contain much essential oil which is procured by distillation - their colour is a deep Brown, they are heavier than water & often after distillation are sent back into Commerce but are

not good - good cloves being pressed between the nails an oil will exude - if the oil do not exude you cannot depend on their goodness. Their odour & taste are aromatick, water extracts the odour but not the taste - Their action is much like those of Ginger & Pepper & they are given when there are languor & cold of the stomach &c - they are often mixed with P. Bark & are then very useful - Zij Cloves, in Zj Cinchona - They are generally given as a corrigent to Drastick Purgatives - if a Drastic Purgative (e.g. Scammony, Jalap &c) be given in pill or powder, add a drop or two of the Oil of Cloves, this will cause it to act more freely & obviate the griping. Cloves are often given by Empirics to cure Odontalgia, (at times united to Camphor) & often succeed after having inflamed all the mucous membranes - if the concentrated oil be put into the tooth, it often destroys the nerve & thus effects a permanent cure -

(I.) Canella Alba - is a W. Indian plant, first introduced into medicine A D 1605 & has ever since been confounded with Wintere's Bark - this however contains the inner Bark of the Tree - its colour is of a light & whitish complexion with a tendency to yellow - at times we find it in fragments, but more often in pills - it has an aromatick odour & a taste resembling that of Cassia. a slight bitterness remains in the mouth - water in which it is does not acquire warmth, but only pungency - in distillation it gives out a thick viscid oil like that of Cassia - it is stimulant & Tonic & used as an adjunct to Bark &c - dose 10 to 15 or 20 grains - In combination with Aloes it forms Picra Picra -

(K.) Cortex Winteriana, Aromatica, is usually substituted for the preceding but is more pungent - it is otherwise like it & is a good substitute - This

plant was named after Capt Winter who discovered it at the Straits of Magellan -

(L) Cassia, (the product of the Laurus Cassia, is sold in the U.S. for Cinnamon, but is a different species, resembling it however in colour it is generally in quills, which are better in proportion as they are thin, small & of a light colour - if dark, it is bad & if of a salt-ish taste has been distilled - Most of the Cassia in Commerce is brought in mats, but the best comes in cases lined with lead, in the latter you may depend upon it - but this species we seldom find in this country - its odour is aromatick - its taste, agreeable sweetish, & pungent - a little bitter when not good - Cassia is a Carminative & Stimulant, entering into many official preparations & being administered with Tonic Bitters -

(M). Cinnamon. Is the product of the Laurus Cinnamomum - its colour is light & yellowish - it is as thin as paper - is imported from Ceylon & China - the former species is preferable -

(N.) Murias Ammonia. consists of Ammonia in combination with Hydrochloric acid, prepared by decomposing Hydrochloric acid with Muriate of Ammonia - sublime this in a retort. It is also procured from camel's dung & imported in large cakes from Egypt - it is bitter & acrid - it is soluble in 3½ parts of water at 60° & still more soluble in Boiling water - It is used as a sialogogue & often proves rubefacient - it is reputed good as a deobstruent in the Mesenteric Glands - & is serviceable in Intermittents - If to Zij of a ℞ of Cinchona you add 20 or 30 grains of Muriate of Ammonia, an action is produced more powerful than that resulting from the Bark alone -

[illegible] Iron found on the Fort Hunter side between Lot 18 Mohawk River
[illegible]

(L.) Coffee, the powder of the Kaunee Coffee, is also in the U.S. for
Government, but is a powerful Astrin. Gum Mucilage is known in other
of its powers by its Gentle, solid or fluid is prepared as the Gum
Arabic, mixed with a little water. It Mucilaginous [illegible]
[illegible] Coffee is Government
[illegible] is made, but the last name is Coffee [illegible]
[illegible] Coffee [illegible] the Physician [illegible]
[illegible] Coffee is a [illegible] Coffee is a
[illegible] Coffee [illegible]
[illegible] Coffee [illegible]

(M.) CINNAMON. The powder of the Kaunee Cinnamon is [illegible]
[illegible] Cinnamon is [illegible]
[illegible] Cinnamon is [illegible]

(N.) Muriate Ammonia. Combine of Ammonia is combination with
the Muriatic Acid. Muriatic for decomposing the Muriate and
the Muriate of Ammonia. In Muriate this is a salt. It
also prepared from Coal. Muriate of Ammonia is [illegible]
[illegible] Muriate is [illegible]
[illegible] Muriate [illegible]
[illegible] Muriate [illegible]
[illegible] Muriate

II. There is (& of which I shall now speak) another subdivision of Excitants, containing articles which together with their general stimulant effect exercise a powerful action on particular structures - of this class I mean Iodine & Mercury of which the former besides its general properties, has a particular action on the Thyroid & Mammary Glands & which even totally disappear at times after its use, first however having greatly swelled. Mercury on its part, has a special influence on the Salivary Glands - it is common however to both these articles to produce general stimulation of absorption, & hence serous effusions, indolent Tumours &c disappear when they are employed, & especially after Iodine - These medicines from the nature of their actions are usually given as alteratives, or to produce a slow & gradual excitation - they operate at first by moderately exciting the gastro-intestinal surface & by subsequently entering into the System & affecting the other tissues.

(A). Iodine. It a simple substance never hitherto decomposed & was discovered some 12 or 15 years since by Courtois of Paris who was a practical chemist & was occupied with some preparations of Soda - his notice was first attracted to the fact of the existence of small crystals in the vessel which contained the Soda. Since then it has attracted the attention of Gay Lussac, Davy & other distinguished Chemists - Its name is derived from ἰοειδης, & its colour is violet when volatile - "Iodine is obtained from the mother waters of carbonate of soda, manufactured from kelp. After all the soda, in a lixivium of kelp has been crystallized, the Residuum is concentrated, & distilled with Sulphuric Acid in a

+ "Hare's Minutes"

+ Hare's Minutes.

retort: the iodine passes over, & condenses in shining crystals of an intense purple, or Black colour. When solid, Iodine is of a thick Black Colour, friable, acrid, & almost insoluble in water which takes up 1/7000 of its weight - but soluble in Alcohol & Æther with which it forms Tinctures - fuses at 225° (Fahrenheit) & volatilizes at 350°: its specific Gravity is 4.94: in substance we find Iodine in small scales & it crystallizes in the Rhomboid form - it usually possesses a metallic Brightness. "Iodine is incombustible either in Oxygen or atmospheric air but forms acids Generally with Oxygen, Hydrogen & Chlorine, called Oxyodic or iodic, chloriodic, hydriodic acids - Nitrous or fuming iodine produces an intense Blue colour; so that these substances are Reciprocally tests for each other" - "Iodine is very analogous to chlorine & oxygen, especially the former" In large doses Iodine has the character of being a very poisonous stimulant - In small doses it is medicinal, but of superior general action - In animals who have taken large doses it acts on the gastro intestinal surface, vomiting, Purging &c - Post Mortem examinations have discovered the stomach to be greatly contracted, inflamed & ulcerated on its Mucous coat & the Bowels in a similar state - Ossila experimented on himself & took 6 grains whilst fasting, & at first found the taste very disagreeable, soon creating epigastralgia, nausea, heat, colic &c - it makes the pulse more quick, the skin hotter - but these effects finally passed away - Magendie took a teaspoonful without any effect, but his account does not correspond with general experience which he took may have been adulterated & have led him into an error, tho usually very correct -

† The Mamma in a poor woman became so large as to deprive her of the power of working & otherwise very inconvenient & was ~~destroyed~~ by Iodine by taking from 10 to 30 ~~drops~~ 2 or 3 times per day - Surgical operations have been resorted to in similar cases -

The Syrup in large doses evidently irritates the Mucous coat of the Stomach & Bowels after having been taken a long while - The Brain Spine & Nervous System also influenced - there is pain along the Spinal Column, nervous Tremors & Head-ache which last is sympathetick of the diseased state of the Stomach - the other symptoms are not however sympathetick but original - After having been long taken Iodine produces Emaciation throughout the Body - the fat, the effusions & every absorbable part are taken up & persons have from being very bulky in a few days been reduced to skeletons. The Mammæ & Thyroid Glands are however almost universally destroyed - indeed it was first used in consequence of this fact by K— of Geneva as a remedy in Goitre in several cases with success & has also been subsequently used - he also gave it in cases of exceedingly large mammæ with success. Iodine has been successfully given in cases of Scrofulous enlargement of the Lymphatick Ganglia as far as is known when the glands of the neck & maxillary glands were diseased. Iodine has the property of increasing the Menstrual discharge exciting it once per week & hence has been successfully used as an Emmenagogue in Chronic Amenorrhœa - Paris says he saw it cure a case of Tubercles in the Lungs - this I deem extremely problematical & it must at all events have been a mere conjecture - Among its consequences are a dry cough & febrile affection - even Phthisis Pulmonalis has been produced - Roland recommends it in cases of indurated Testicles & it may indeed be serviceable when this complaint is of a Chronic Nature - Richard in Chronic Gonorrhœa & Leucorrhœa

But except when these diseases are very violent they should not be treated with remedies so hazardous - indeed whenever you give Iodine watch its effects with caution - never forgetting its tendency to produce gastric enteritis - sometimes it produces only emaciation, but unfortunately this does not cease to progress even when the medicine is discontinued & very many lives have been thus lost. Iodine is given in substance from ½ gr to ½ss in a pill with Bread - usually however it is administered in Tincture (dissolve ℈ij in ℥j of Alcohol say the Pharmacopeia, but I find ℥j too little to take it up) The tincture will not keep very long & hence should be prepared only in quantities sufficient for present use - Dose 10 to 20 drops, twice a day in ℥j of any mild vehicle - The Sulphuric Ethereal Solution, consisting of Io=dine with Sulphuric Ether has been called Iodinated Sulphu=ric Ether - but is seldom used on account of its violent action - Dose 4 to 5 drops 2 or 3 times per day - A solution of Iodine in Potash forms Hydriodate of Potassium - this is most often used, & exists only in a liquid state - being crystallized it is con=verted into iodiuret of Potassium, a milk white salt in cubic crystals - if Alcohol or Water be added you have again the Hydriodate - This possesses effects similar to those of Iodine but is milder & more manageable, which properties have caused within a few years that it has become preferable to it possesses nearly the same properties as Iodine itself - This is usually given in solution, ℥ss of the Iodiuret of Potash in ℥j of Water - Dose 5 to 20 drops twice or thrice per day - it takes up more Iodine & is therefore still more powerful - The Hydrio=dated Hydriodate consists of 18 pts Hydriodate & 5 pts Iodine dissolved in ℥v of Water - Dose 4 or 5 drops twice or thrice per diem - From

*Hydrargyrum.

both the latter preparations is formed an ointment (& some physi-cians propose that Iodine should be always externally administered - this ointment is composed of 1 part Iodine & 24 of Lard - I, rubbed on an affected gland 3 or 4 times per day - this is used in Scrofulous affections, but requires to be cautiously administered, since these diseases are so commonly associated with Tubercles of the Lungs.

(B). + Mercury. Mercury is a metal found in various countries & particularly abounding in Spain Hungary & Germany - it exists too in Siberia & S. America - one of the Mines in Spain hath been worked for 200 years & affords quicksilver for working the Mines of S. America - The Mercury of commerce is chiefly derived from the Levant & from China whence we obtain it in leathern bags or in Iron Bottles - Mercury at times occurs in a native state but much oftener with Sulphur & forms Cinnabar - this is rubbed with Iron filings placed in an Iron retort & heat is applied - this forms the white argentine metal called from its liquidity & colour Quicksilver - it wants taste & smell - is soft & malleable at -39° (F) & boils at about 660° (F). & then evaporates - it is very elastic - exposed to the air, Mercury absorbs Oxygen & is tarnished - this is called the Protoxide of Mercury - if exposed to both Heat & Air a red powder will be formed called the Peroxide - We often procure Mercury which accident has rendered impure but much oftener fraud. it is adulterated with Lead, Bismuth Zinc & Tin, & in every case has the same appearance - the purity of Mercury may be tested by pouring it on a Delft plate in small globules, if these Tail it is impure - if pure it forms round distinct globules - its purity is of great importance to the Physician - Make a nitric Solution (if you wish to know the particular metal

+This is the mode adopted by Thermometer makers-

in combination, which test with any Sulphuretted water - if lead be present a dark precipitate is cast down - if Bismuth throw this into water & it is precipitated as a white Powder - If Tin, add the nitro Muriate of Gold & there will be a purple sediment - If Zinc evaporate it & the Zinc remains behind. All the Pharmacopeias direct us to purify Mercury with Iron filings in a retort - but this does not always direct it of lead - the best method of purification is washing it with diluted Sulphuric Acid - decant this & dry the Mercury with Towels - if it be fine it will pass through a paper funnel containing pin holes. Metallic Mercury was known to the Ancients, as was Cinnabar also, but not as a medicine - it was the vulgar opinion (countenanced by Galen) that it was a Poison - To the Arabians it was first made known through the instrumentality of their fondness for Chemistry & Alchemy to be of service - the consequence was some of its preparations were formed - Avicenna first wrote of it & tells us it was internally used but which I consider doubtful - tho' it is true that it was externally employed - Into Europe it was introduced about A D 1490 from the Arabs, but a general distrust of it existed among the Arabian Physicians - but as Alchemy prospered there were numerous Chemical discoveries not the least important of which related to Mercury - this, supposing that if they could vivify, it would be easily converted into Silver or Gold, they were encouraged to persevere and fortunately succeeded to great success in augmenting our knowledge on this subject. The Chemists at times, at length began to venture on its

employment tho' such a course was considered allied to Treason - occasionally they effected important cures where all other remedies had failed - its reputation very shortly increased - In regard to the use of Mercury in Syphilis ~~so~~ far as I can trace its history I do not find the prejudices to have ceased till the middle of the 17th century, after which, (particularly in England (in which country indeed it was more favorably viewed than on the continent) it gained the reputation of a specific & sole methodus medendi - In other diseases than this the use of Mercury is of very modern date, having been introduced by Chisholm & Rush into this country, circiter AD 1793 - from that period till the present it has become an almost daily prescription & is unquestionably when properly administered extremely salutary, injurious at times rather in consequence of its abuse than of its use - ~~[illegible] of the preparations of Mercury~~ -

Lecture 41st

"Therapeutick Principles for the use of Mercury -

Till now I have met with no fixed principles on this subject, & I think the practice hitherto may be said to have been pretty empirical & seldom directed by rule deduced from of its action, & usually sanctioned by precedents as authority or else routine - True, indeed even principles are often ill founded & are not as directors - in such a case our practice must necessarily be empirical - we must grope in an

uncertain light & be governed by cases supposed to be analogous of choice however we should never adopt an empirical course of practice, since such is ever uncertain & perhaps a source of mischief coextensive with the disease itself - Science too is shackled as much as by errors in Speculation, besides which we detract from the high pretensions of our Science which is most sublime & Philosophical - Always then in the practice of Medicine be governed by fixed principles, & for this purpose it is only requisite that you should have minds open to the convictions of Truth - We are informed by a very respectable medical writer, that "it is our duty to do nothing in our profession without a good reason, which whatever may be the result of the case, will always leave the Conscience clear" - It is of course then our duty to study the Phenomena elicited by the Mercurial Preparations & hence to learn on what to found our Expectations -

When the milder Preparations of this metal are given in strong doses they generally, (for in particular respects they vary) exercise a decided influence on the alimentary organs - excite Nausea - Cardialgia - uneasiness of the Bowels - alvine discharges (usually known to be of a bilious character -) The more active being purely given (as Corrosive Sublimate & the Nitrate of Mercury) their effects are more decided & at times almost prove poisonous, creating a fatal Phlegmon of the Stomach & Alimentary Canal - The milder ones, again, produce the operation of a Cathartic, increasing the excretions & secretions of the Alimentary Canal & exciting the peristaltic action - You recollect that when treating of Purgs we said that whatever irritated the Mucous Coat of the Alimentary Canal would prove

Cathartic - But their irritation is not always decided & we are often disappointed, giving large doses without success: hence it is a usual & very good practice to administer another Laxative after these - (as Salts Castor oil &c) - Calomel & the oxides of Mercury which are most commonly given as Purges are usually insoluble & hence are not rapidly diffusible, but remain long in contact with a small portion of the coat, & awaken slight irritations at first in the Stomach & subsequently in the Duodenum, but not till they have been long used - On the contrary the preparations which are soluble are very vigorous & even Poisonous - Those acting slowly are on account of this property good in many febrile affections - if not very intense already, they do not increase irritation & if limited to a small portion of the Mucous coat are less apt to do injury & more disposed to prove resolutive on the sound parts - hence they are preferable in the first stages of fever - When the Mercurial Preparations are taken in small doses (gr ½ to 1 - of Calomel or Protoxide, or gr 1/10 of Corrosive Sublimate,) no decided operation is effected on the Stomach or Alimentary Canal - if continued for a few days, however, we observe general effects on the system, which are evidently those of a mild & general stimulant - (I speak now on the supposition that the health is good or the patient has a slight syphilitic affection.) The stomach is at first invigorated - the appetite & digestion are improved, the alvine discharges are regular & Bilious - muscular vigour is increased - the pulse is accelerated, if continued, & is fuller, animal heat is developed, the skin is moist - if the practice be pursued farther these symptoms are exalted - There are something like febrile symptoms - a tendency to headache,

+There is a girl in the Alms House completely disfigured by the use of Calomel & Jalap -

& the symptoms increase till we have regular & confirmed fever - the skin is now dry, the pulse frequent & often tense, - thirst, debility, & headache, at times very intense - either costiveness or purging - a tongue red & furred &c - soon the Breath grows fœtid, Di=gestion & appetite cease - the gums are red, (the circulation being very vigorous) tender, soft & in short the patient is salivated - But what is Salivation? If attentive to this subject we will find the Gums & all the mucous membranes of the mouth in a state of sec-excitement & if these symptoms be not arrested complete Stomacritis ensues - the Gums slough, the teeth are loose &c - if continued after this the practice must prove fatal, as happens in ordinary salivations of peculiar idiosyncracies &c - it is then a disease which we cannot arrest - the Bones are carious & we have either Death or Deformity - I have now described the symptoms of what may be called the Mercurial Disease - hence the Mercurial Preparations rank among Excitants but are characterised by their great diffusibility - What is peculiar to them is their gradual action which proves their effect to depend on absorption - their effect is generally proportionate to our throwing it into the System in small Doses & on their diffusion is dependant their Inflammation which is developed through the System - When Mercury acts directly on the Alimentary Canal it passes by the bowels is not absorbed & has a slight action unattended by Salivation - There are certain persons whom it is impossible to Saliviate, But in general Mercury exerts almost a specific effect on the Salivary Glands - There are exceptions indeed in persons who feel the general irritation

but do not experience its effects on the Salivary organs. It is always then improper to push the Mercury with a view to salivate, since it may be made to inflame more important organs. Such then are the singularities attending occasionally a course of Mercury - at times an intense action is directed to the heart. Percival & Bateman in the Ed. Med. Chirurg. Transac.ns state similar cases. It seems to destroy the organ's irritability - at times the first symptom is fainting succeeded sometimes by death. In the Alms House a patient who was apparently recovering from Syphilis on attempting to get out of Bed dropped dead & which was no doubt occasioned by the Mercury he had taken. In the case of Dr Bateman who took Mercury the debility of the circulation became so great as to render it necessary to arouse him every 15 minutes & to administer very strong stimulants or the pulse became very low. Hitherto, gentlemen, we have spoken of the Acute Mercurial Disease - but it at times attacks in a Chronic form. This is too often overlooked, often occasioning great distress & at times destroying life. This may follow the acute form or be original itself. When the former case exists the injury is ascribable to large doses or to peculiarities of constitution - when the latter (& which is more common) arises (usually after a moderate exposure for a few weeks) we have a constant Hectic irritation, a sub-inflammation of the different Tissues, Mucous or Serous effusions, a disposition in the Periosteum for disease, nodes on the Bones or joints. Rheumatick pains, Chronic ulceration of the Throat, if the Brain be affected we have universal Tremor, Paralysis, & which is a common as well as a very dreadful symptom, we also

A shocking case of this kind was called to attend by a gentleman who under the belief that he had infected his wife with the venereal disease - undertook to treat her with Mercury himself, & soon excited profuse Salivation - & in 10 days Mania supervened - I deemed it necessary that she should be taken to the Hospital, where the state is & is probably in cinatti! I never saw, than in this case, a greater destruction about the mouth. more extensive sloughing or greater Excitement -

+ The gentleman indured a profuse Salivation by running near the Delaware in a marshy soil - another after being bled & a third after taking a purge -

fear Mania. If Blood be drawn, either in the Acute or Chronic Mercurial disease, it has a crust - the fibrine is actually diminished, the watery substance abounds - perhaps owing to want of proper assimilation. This is of late said to be universally the case. At times the urine is coagulable, that is the albumen & fibrine not being fully confined back from the kidneys. Some go so far as to say, that the effects of Mercury may be determined by reference to the Urine. It is from all these considerations palpable that Mercury is a general stimulant. It is likewise capable of remaining very long in the system without producing any sensible effects - a singular fact, but which we cannot doubt, for in my own practice several cases occurred where ~~an~~ attempts to salivate having failed no apparent consequences ensued till after several weeks had elapsed - in one case not till after several months. From what we have seen then of Mercury may be inferred that it possesses utility 1st as a Purgative, 2nd as an Alterant 3rdly as a Revulsive (by means of Salivation) 4th as a General Excitant, 5thly as an Antisyphilitic - Entertaining such views it appears that if properly used Mercury possesses more advantages than probably any other article of the Materia Medica - & if improperly it is very prejudicial & capable of the worst effects. As a Purgative only the Protoxide or Calomel is given Dose 10 or 15 or 20 grs. & is always improved by being combined with or succeeded by a Purgative - the preparations of Mercury however often fail to purge & salivate - as a Purgative Calomel is used in common costiveness but which I would never advise, there being numerous Purgatives not only safer but better. As a Purgative in the commencement of Fevers it may be good, but

if the fever be intense & particularly if there be Gastric Content in Irritation, they are very injurious - I have been forced to abandon the practice & have by other means succeeded in gaining the good effects produced by Mercury without the ill - When the Tongue is large & moist, there being no epigastric uneasiness give 6 or 8 or 10 grs in the first 48 hours of Bilious or Remittent, for which the best time is the evening & next morning a mild Purgative - Beyond this I would not advise its use, & even thus far I do not often go, usually employing other Purgatives (the Saline are very good) when the thirst is great & there is gastric irritation - I give these preparations - As Alteratives the same preparations (the Protoxide or Calomel & very rarely Corrosive Sublimate in Chronic affections) are given in both the Acute & Chronic stages - In the Acute since 1793 the practice has been very fashionable & was first adopted in this Country but within 10 years has obtained in England & on the continent (tho' rarely -) Dose as an Alterant gr ss to j 3 or 4 times per day, the object of which is to excite the Liver - But in most Fevers the action thus produced is too great & so is it also in Common Bilious Fever, & if any principles exist it is certainly wrong to administer it in such opposite states, for it is given in both - The plan cannot be right in both & I deem it wrong in the acute when Bile is thrown out - Hence in Hepatitis or Bilious fever if much Bile be present Mercury is contra indicated - & I consider many Chronic diseases of the Southern States occasioned by the abuse of Quicksilver - This I speak with diffidence - I think it right always to have opinions of our own, but not to wish them to be considered as Gospel - In Chronic Inflammations of the Duodenum which pass to often for Chronic

† These consequences were exhibited in the cases to which I allude when for a short time the patients seemed recovering & died very suddenly - in one of them the patient at first seemed convalescent, but in 4 days after there was no salivation the tongue was swelled, had a thick crust & the gums moist - at first I thought there was a relapse but the disease had lost its intermittent type there was no regularity in the paroxysms - the Bowels were opened - the pulse irritated - the tongue so swelled as to cause aphonia - he escaped with difficulty. The next week a medical friend had a patient with the same disease whom he treated with 8 grs of Calomel per 2

Hepatitis by of Blue Pill, a Tea of Calomel with Jalap: a Tea of Kermes Mineral is very good - These remedies I have known to cure Inflammations of the Duodenum accompanied by want of secretion on the part of the Liver - The general excitement too of many tissues diffuses the irritation accumulated on one organ - the dry & hot skin often yield, but if continued I advise you not to go too far. Dr Renkins also by means of Salivation on the Mercurial preparations exhibited I am much inclined on - whenever in fevers we excite complete Salivation we cure but the difficulty consists in accomplishing this & the danger in making matters worse if we fail - This was the plan with which I commenced my Cases but was compelled during the last Epidemic to abandon it - I lost 2 patients in rapid succession & could not disguise to myself the fact that they were victims to the treatment - In fevers there is debility of vitality from the disease itself & you find that patients recovering from fevers are always weak even tho not depleted - what then will be the consequences if the rapidly debilitating effects of Mercury be superadded? There is another inconvenience in Fevers that instead of salivating we often produce violent inflammation accompanied often by Hemorrhagies from the Gums - All these things I could not but attribute to Mercury - The difficulties then which under Mercury improper in Fevers are 1st When the Fevers are very acute we have no opportunity to salivate, for the crisis passes before the treatment can be instituted - when Yellow Fever has been treated with Mercury it has only been prolonged - 2dly Salivation succeeds rapidly when the patient

hours - I told him of my ill success but he laughed at me. Con=
=valescence commenced & continued till the 4th day when the patient
died in a state of convalescence! Dr Hawthorne of this city
has also adopted the same practice -

3d - we cause inflammation of the mouth instead of salivation

Lecture 42 -

When we take a view of the general exciting powers of Mercury we observe that one of its remarkable effects is a stimulation of the absorbents (whether the veins perform the action of absorption is still sub judice, but the powers of absorption are evidently influenced by Excitants, as e.g. by Iodine, Barytes &c.) It is for this reason that, Mercury effusions & in serous effusions of the cavities they often disappear with the same view the Mercurial preparations are given in Chronic indurations of the Glands & from their success have been usated to in cases of Scrofulous enlargements of the Joints &c - The testimony in regard to Mercury's value here, is very various, but I think that the majority is opposed to it, if carried so far as to produce general excitement. But as a Purgative (a dose of Calomel per 8 or 10 days) it is recommended by the British physicians - By the modern pathology of Scrofula the Mercurial Preparations are contra-indicated, for this considers it to be an Inflammation of the Lymphatick vessels, hence the most successful course has been the Antiphlogistick - Dupeytren and who has charge of l'Hotel Dieu finds this practice far superior to the former which consisted in administering Tonics &c - In the first stages or when the predisposition is developed he mentions recoveries from a proper diet & exercise, but when the symptoms are developed the antiphlogistic practice will

(+ Much of what follows on this subject, has been anticipated by Dr. J. in his remarks on Sarsaparilla. - Vol 1st q.v.)

+ one of these contained 1/14 part of Mercury & 1/20 Corrosive Sublimate - (Gillenius)

be more successful. When Scrofula is (as generally) accompanied by the usual tendency to Tubercular Phthisis almost certain injury results from giving Mercury & I consider some of the plans for managing this disease so fatal as this, having never seen any benefit to result from it either while a student at the Hospital when Dr Rush practised or in my own practice - occasionally the cough & other symptoms may cease during the action of Mercury but when these effects are over it runs its course very rapidly - The practice indeed is now uniformly abandoned both here & in other places & I have heard that Dr Rush before his death lost all confidence in it & confessed that it had not succeeded in a single case -

Next of Mercury as an Anti-syphilitic - In regard to the time or the inventor of this practice we have no precise knowledge - It was however given previously to the appearance of Syphilis in 1493, but we suppose merely in cutaneous disease - Syphilis was at first considered an eruptive disease, & was probably on that account as in other eruptive diseases employed in this - De Carpi who flourished in Italy in 1512 first adopted Mercury extensively & with marked success - acquiring also a large fortune - But it is mentioned by earlier writers & a recipe of an ointment still remains which was made known 8 years after the Syphilis appeared into which Mercury entered - Gallenius in 1497 & Vidad also refer to ointments. There were also several others of which the basis was Mercury - I have already informed you that when first proposed, Mercury was received with great distrust by Galen & his disciples - he anathematized Metals & they came into repute very slowly -

It has been supposed that Syphilis was indomitable to Geniu without the use of Mercury - I was much surprised on investigating the truth of the assertion to find the reverse held true & that Guiacum & Sarsaparilla had effected cures in very bad cases - & in fact at one time the only argument for its American origin was this which supposes these remedies to be Specifics - viz - that the Almighty had in every country placed a remedy for every disease & that Guiacum was the one in this case - Mercurialis who wrote 150 or 200 years after Syphilis first appeared does not mention any Mercurial preparations & details several aggravated cases cured without them - But Mercury gradually gained a more extensive field & finally was considered the only specific for Syphilis - an opinion at present entertained in England - This doctrine was first questioned by Sir Geo. Fordyce - & Hunter tho' he maintained the opinion with much candour stated so many cases of its failure as to greatly weaken general confidence - In Italy & France Mercury has been always used with caution but most of the French deem Syphilis curable by no other means - Within a few years the correctness of former opinions has been questioned by the Army & Navy Surgeons of England - at the head of whom is Thomson - I think it appears from evidence that out of most cases called Syphilis some thousands have been cured without Mercury - But it may be asked how is it possible that the medical profession should so long have been ignorant & confident that there was no other plan of cure? - This fact, I answer, is but a proof of the routine established & often followed in Medicine without reflection & often without examination - Such was the

infatuation in regard to Syphilis that practitioners seem to have forgotten that the genital organs are liable to ordinary ulcers - let a patient have a sore there & it is immediately called Syphilitic - such was the case in regard to the slightest sore when I was a student with the late Dr Wistar - In perusing the numerous works on Syphilis I have been struck with the violence of the disease as formerly described when compared to the disease of the present day. there is great difference as to its character - nothing could be so formidable as it was in the middle ages - Some writers of the present day think that the Syphilitic virus is becoming extinct - but I consider the abuse of Mercury to be the cause of its formidableness - You will find that most of the patients went through 7, 8 or 9 courses, as was the case with the celebrated Ulrich Von Hutten, who went thro' 8 courses. The patient was put into a room which was almost her=metically sealed - the windows being stuffed &c - himself put to Bed & kept on Mercury 5 or 6 weeks, spitting a quart per day - even when I was a student 15 years ago it was the Practice in Philadelphia to make the patient Spit a pint in a day - Under this course of things all the powers declined - Hectic irritation succeeded & the simplest sore became sloughing & Gangrenous - In the Hospital I have seen patients who had taken every preparation of Mercury - their Penes had sloughed off & the ulceration extended up the abdomen & killed them - All this time there was no suspicion that the Mercury was guilty of the death but it was accounted for by the supposition that the particular ointment did not suit the kind of Ulcer! -

+ A young lady of 15 was married to a young man of 20 who a few months before had had the venereal disease but was at the time of marriage perfectly well - 2 weeks afterward she had a sore on the Labia of which he thought it possible he might have been the cause - he told her of it & she informed her mother who consulted a Quack in the R. Liberties he confirmed their suspicions & gave her Corrosive Sublimate till she had taken several hundred pills - She had ulcers on the throat, nodes on the nose, Blotches on the skin &c & her elbow joint was stiff - Under these circumstances the husband applied to me & I was immediately satisfied that the complaint was not venereal - she informed me that if her finger were pricked by a pin or needle she immediately had a sore & her hands exemplified this for they were covered with them, & the slightest abrasion of the skin during the use of the Mercury produced similar effects - there were other similar symptoms which satisfied me that Mercury was the cause of the disease & incapable of curing it - The Syrup of Sarsaparilla cured her in a few weeks —

In this way I am satisfied any other may prove incurable. In regard to Syphilis the practice is not so much affected by the different opinions as by the question whether the disease be really the venereal or not - I consider the following of an old writer excellent advice cautioning us not to be too fond of any particular medicine - "I would warn the world to beware of the Doctors - lest like a bad shoemaker who attempts to fit all feet with one shoe, they attempt to cure all diseases with one remedy." —— says that 400 years ago nodes were unknown nor was falling off of the eyebrows heard of - effects which (he continues) many of the Doctors attributed to Mercury when it subsequently became common - & I find that the German & Italian Physicians use Mercury only as a "deernier resort" At first the plan was to administer Sarsaparilla & Guiacum & to adopt the Sudorific treatment with Purging & Bleeding - if which failed 1/16 part of Mercury was given in an ointment - & all authors agree that nodes, Rheumatick affections be an the result of an excessive use of Mercury - We are at present, then it seems, in guarding more against Mercury than a short time since, simply returning to the former way. It is however well to say one word in relation to the non Mercurial system - In abandoning Mercury altogether I think that we now run into an opposite extreme Many patients who apply to us with affections of the Penis have not the Syphilis - But to determine this point I know of no rule - John Hunter's do not answer - he says 'the sores appear dry with hard grenish edgeste, but such sores I have seen in persons who had no connection with women &

they have been cured by Lead Water - The character of ulcers depend on their locality - if situated on the Prepuce & this be inflamed they cannot be distinguished - this renders it always proper to use only the mildest Antiphlogistic & the Antiphlogistic system - a poultice if the parts inflame & then use an ointment - the common cerate I consider best - after the failure of these it will be time to resort to Mercury - From what I have experienced in my practice I should calculate that of 12 applicants supposed to have the C. disease & get well under mild Topical treatment in 2 or 3 weeks & rarely have secondary symptoms of the remainder 2 recover under the same treatment, but more slowly & have secondary symptoms - & the other 2 cannot be cured without Mercury - I have often been called upon to see the parts sloughing away under the abuse of Mercury - But beware when there is a disposition to slough how you use the stimulating applications immediately - I once called to see all the skin of the Penis sloughed off & which was relieved by an Hemorrhage of a small artery.

Particular Mercurials.

Of these a number are made directly from the purified Quicksilver - of these one of the most common is.

(A) Pilula Hydrargyri. These consist of Pure Quicksilver ℥ij, Conserve of Roses ℥iij - Liquorice finely powered ℥j - Rub the Quicksilver & conserve till the globules disappear, add the liquorice & mix them - To determine whether these are properly prepared rub them on white paper if no globules appear they are good, if not bad. it is very difficult to extinguish the Mercury - in the Alms House men have been employed constantly for 4 months (night & day) without success - but simply in a few hours we may succeed by taking some

of the old ointment melted to the quicksilver & rubbing them up-
then add the Conserve of Roses &c. To ℥j of Mercury add an equal
quantity of the old ointment melted & you will succeed in 10
minutes. 3 grs of the pill contain 1 gr of Mercury. The Mercury
is supposed to exist here as a Protoxide, but this is not certain.
I am certain that the Black Oxide is not so sure a salivant as
the Blue Pill. I have used it without success in the Alms House
but succeeded with the Blue Pill which I found very certain &
mild & in the commencement the best possible remedy. I
should have said that Mercury combines with Oxygen in 2 pro-
(B) portions & forming the Protoxide & the Deutoxide (B) The Protoxide
is of a dark grey colour & forms in the shape of a powder on
Mercury which has been agitated in the air (do not confound
this with what forms on Mercury that is adulterated with
Lead.) The agitating plan being tedious, you had better wash
Calomel with hot Lime Water. if it be not hot the Calomel
will not be completely reduced to a protoxide. when it is
hot the colour will be Black. It also may be formed, tho'
(not a simple Protoxide) by means of Ammonia which is quicker
than cold Lime Water. It is also made with Caustic Potash, & the
darker the powder the better. if light grey it is not so speedy. as
an alterant dose 2 to 4 grs. as a Purgative 15 to 20. this consists of
8 parts Oxygen in 200 of Mercury.
(C) The Deutoxide contains 16 parts of Oxygen in 200 Mercury & is
formed by boiling Mercury for months exposed to the air. it was
formerly boiled 6 months till reduced into red scales, this practice
has been abandoned. It was called Mercurius precipitatus perse.
(D) Somewhat similar to the Black oxide is Hydrargyrum
which contains 3 parts of Mercury 5 Cretta Preparata

+ You had better rub it up with some old ointment as I describes just now –

this is very mild & good for children absorbing whatever acid may exist in the stomach - it has been applauded in Tinea Capitis - Dose 5 or 6 grs - ℥ss to an adult - This mixture has been changed by the addition of Magnesia but which imparts to it no superior advantages -

(E) Syrupus Hydrargyri: this is of great repute & contains 1 part of Mercury, 3 of Gum Arabic & 5 of Syrup of Poppies -

(F) Mercurial Ointment - of this there are 2 kinds - Unguentum Hydrargyri fortis, & U. H. mitis. The former contains equal parts of Mercury & Lard mixed with Suet till the Mercury is extinguished - if you wish a stronger action diminish the quantity of Lard - The Mercury here is said to be partially a Protoxide & its subdivision is attributed to its mixture with the Lard - This has been tried in the Alms House & what tho' curious is true, it failed in several patients who took Lard & the Black Oxyde - The Blue Pill however never fails - The Blue ointment & the Blue Mass I consider the two best remedies in Syphilis & they do not affect the Bowels - The former is to be preferred only as very unpleasant

(G) Linamentum Hydrargyri - is composed of (say) 4 parts strong Mercurial ointment, 4 of Lard & 4 of liquid Ammonia, to which add 1 part of Camphor powdered in q. s. of Alcohol & rub it well in - this forms a very stimulant Discutient - in case of Indurated Glands a Syphilitic pains in the extremities it salivates more speedily than the strong ointment & must therefore be cautiously employed -

(H). Emplastrum Hydrargyri - This is merely a local remedy - it has 24 parts of Mercury rubbed in - 1 part Sulphuretted Oil & 96 parts of Diachylon Plaster - at times it contains a portion of Gum Ammoniac -

Lecture 45th.

We have in the last lecture spoken of the preparations obtained from running Mercury - we have yet to treat those compounded of Nitric Acid & the Oxide of Mercury.

(A). Nitrico Oxide of Mercury (Red Precipitate) consists of 4 parts diluted Nitric Acid & 3 of Mercury. dilute this till dry & you have the pernitrate of Mercury which decompose by heat - Oxygen combines with it & a small portion of Nitric Acid remains - its colour is a beautiful shining red but which cannot be imparted to it without much skill in regulating the application of the heat - it is sometimes of a dull red colour like Cinnabar or Red Lead - this differs from 'Mercury precipitate per se' in having Nitric Acid - The Red Precipitate is never (or very rarely) used internally, being highly escharotic & corrosive & hence too dangerous - it is chiefly used as an Escharotic in Venereal or Fungous Ulcers, in the form of powder of Unguentum Hydro Nitrico Oxydi, which contains 2 parts of Wax, 8 parts of Lard, 1 part Red Precipitate rubbed with powder.

(B) The Protonitrate of Mercury is not often used in this country - it is dissolved in the Nitric Acid & crystallized - by adding Ammonia a black Precipitate is procured which was formerly in great repute in Syphilis - From the nitrate may be formed the Syrup. de Billet, which was a great favourite in France - take 3 parts Nitrate of Mercury, 1 part of Nitric Ether make a solution of them & add 250 parts Syrup of Sugar - Dose ℥ss in any mucilaginous vehicle -

(C) Corrosive Sublimate. Mercury also combines with Chlorine in 2 proportions forming the Proto & Deuto (or Per) Chloride of Mercury - The ~~Deuto~~ Proto-Deuto Chloride is called in the English Pharmacopia

Muriate of Mercury - [the Oxymuriat of the London P] a very improper name still retained - the common name is Corrosive Sublimate - this contains 2 proportions of Chlorine, 1 of Quicksilver & exists in the form of crystals which are smooth above & rough below - it is perfectly white, nearly semitransparent - effloresces slightly in the air has no odour, but a stiptick, acrid, & metallick taste - it is permanently dissolved in 18 parts of cold & 3 of hot water - this process is facilitated by the addition of the Muriate of Ammonia, or by acidulating it with Muriatic acid - it is soluble in 4 parts of Alcohol & still more so in Ether - if Ether be added to the aqueous solution it takes up all the Corrosive Sublimate from the Water - The fixed Alkalies & Alkaline earths precipitate it as a yellow oxide which on standing becomes Red (& this is a means of detecting it) - It forms the Aqua Phagedenica which is serviceable for Lues Philitic Ulcers & contains ℥j Lime water to 2 grains Corrosive Sublimate - more Corrosive Sublimate than this will not unite with the Lime - Ammonia forms with it a white Precipitate - it is also reduced by the volatile oils & partially by the fixed oils - the white of Eggs reduces it to Calomel & hence in poisons from this medicine is an antidote, to be drank in water - Soaps, Tannin & Tartar Emetic are incompatible with, & decompose it - Corrosive Sublimate was first prepared from the Sulphate of Mercury; at Apothecaries' Hall in London where it is made in quantities, they take 50 ℔ Mercury, 70 ℔ Sulphuric Acid, & boil to dryness - add 120 ℔ of common salt or Hydrochlorate of Soda - to be put into a retort & exposed to heat - it crystallizes on the top & you have from 53 to 55 ℔ - Corrosive Sublimate is one of the most dangerous medicines in the dose of 8 or 10 grains, corroding the stomach & intestines -

In small Doses (1/8 to 1/4 gr.) it produces the general effect of an Excitant (hitherto described) 1 grain is a full dose, creates hauba & acts with too great rapidity, from which circumstance the Alchemists first named it Draco - The time of its discovery is not accurately known but we are for it indebted to the Arabs. It was not at first extensively used in consequence of its great activity which caused it to be viewed with much distrust - Van Swieten gave it a trial in the Hospital of Vienna, in which he is said to have treated with it 60 or 70.000 venereal patients! He chiefly gave the Corrosive Sublimate in water whence it hath been called Liquor Van Swietiani - This contains 1 part of Corrosive Sublimate - 900 Distilled Water & 100 of Alcohol - Dose ℥ss in a mucilaginous mixture, twice or thrice per day - Van Swieten from this derived great advantage but it fell into disuse & has lately been revived in those nostrums which profess to cure Syphilis without the use of Mercury - Corrosive Sublimate differs from Calomel &c in not salivating - the gums are moist &c - there is Ptyalism Salivation produced by the Oxide of Mercury - hence many that take it labour under the Mercurial disease without suspicion of the fact - It enters into "Potter's Catholicon," tho' he says it does not - It is soluble in Æther, in which manner it has of late been proposed to administer it - viz - 16 grains C.S. to ℥j Æther - Dose of this 10 drops - also in Spinter's Æthereal Nitrose, in which way Astley Cooper speaks very highly of it in inveterate Syphiloid Diseases - It is given with the Syrup or Decoction of Sarsaparilla 16 grains in ℥j - Dose 10 or 20 grains - this is very good for old Syphiloid affections - I believe this is decidedly the best of the empirical preparations, possessing all the advantages which result from Swaim's &c - An ointment is also

prepared (the celebrated Poma de Seville) containing 1 part Corrosive Sublimate to 8 of Lard - of which ℥ss to ℥j is to be used in friction twice or thrice per day - Accidents & Mischief result from the accidental or voluntary administration of Corrosive Sublimate & Physicians are always liable to be called upon to enlighten juries on the subject - Every Physician then should be familiar with the means of detecting Poisons - When Corrosive Sublimate is supposed to have been taken, after opening the Body examine the contents of the Stomach & any white matter that may occur pick out & lay aside - you must have at hand a glass Tube 6 inches long & ½ in diameter into which put the suspected particles at the bottom & at the Top have cotton to stop it up - The application of heat below will cause it (if Corrosive Sublimate) to sublime & crystallise. this dissolve in Distilled Water & test with lime Water & if the C. S. be present an orange yellow precipitate is thrown down - or it may be neatly detected by Sylvester's plan viz - put a drop of the suspected Solution of Corrosive Sublimate on a glass plate, & near it a drop of diluted Sulphuric Acid connect the drops - unite a gold ring to a bent piece of Iron & touch the drops with the Ring - if C. S. a galvanic process results & the Ring is coated - this is a very good means - A take Starch made blue by Iodine - add Corrosive Sublimate & a reddish colour results - but this happens also if Arsenic have been taken - therefore it is necessary to add a few drops Sulphuric Acid - if Arsenic be the one the Blue colour is restored - but if C. S. the colour is unchanged - There are many other methods, for which I refer you to the works on Medical Jurisprudence, advising you all to be prepared for. probably you will

+A case occurred not long since in the State of N York, where a Physician was suspected of ignorance on an examination, from whose testimony the prisoner was convicted & executed! Garlic has exactly the appearance of Arsenic –

+A physician of this city sent to an Apothecary for 15 grs of the Submurias Hydrargyri – & the apothecary, by ignorantly sent him 15 grs Corrosive Sublimate by which the patient was destroyed –

be called upon in cases of accidents or when persons are suspected of deliberate poisoning & here the lives of others & the justice of your country may depend upon your testimony.

(*) Proto Chloride of Mercury, also has several names - In London it is called the submuriate which is improper for it contains no Muriatic acid & if it did it would not be a sub Muriate, since the difference depends on Oxygen - The old name of Calomelas is probably the best for prescriptions - the terms ~~Per~~ Proto & Per Chloride (Calomel & Corrosive Sublimate may be mistaken by careless apothecaries, if however you always write 'Calomel' you avoid all danger - Corrosive Sublimate is as I have said always in white pieces smooth above & rough below - Calomel on the contrary has a yellowish tinge & when a mass of it is scratched the scratch is also yellow - Calomel is prepared by taking Corrosive Sublimate 2 parts with 1 of Quicksilver which triturate till the Globules disappear - apply heat & the Calomel sublimes - but still some C.S remains, also sublimed - wash this in water which contains a little Muriate of Ammonia & you remove all the C.S. employ great care in levigating & washing the Calomel or C.S remains, which will nauseate & be rejected if it do not more serious injury - this contains equal parts of Calomel & Mercury - Scheele's process for obtaining Calomel is as follows - Make a solution of the Nitrate of Mercury & half the quantity of common salt dissolved in water - add the two together when boiling, & you have the Proto Chloride of Mercury precipitated - which wash & you have Scheele's Calomel - Howard's plan is to sublime Calomel into water instead of the usual plan - here the C.S is dissolved in the water as it sublimes & is lighter. Many prefer this, particularly the French. Dupoytrel uses it in external dressings for cancerous ulcers of

the nose & lips I lays great stress on using this & not common Calomel, but with what propriety I am ignorant.

(E) Alkalies & Lime Water decompose Mercury & form the Black oxide, or Common Black Wash which is extensively used in venereal ulcers - of this I have already spoken - As a purgative the dose is 5 to 15 drops - as an Excitant, Salivant & Alterative 1/2 to 2 grs if you would salivate without affecting the stomach rub on the gums 1 or 2 grains, twice or thrice per day & your object is effected nearly with the same facility as in the usual way - this is given in pills or Powder

(F). Plummer's Pill & several other empirical preparations have obtained great repute in Syphilitic affections = take equal parts of Calomel & Sulphuret of Antimony (say 1 of each) 3 or 4 of powdered Guiacum - Dose 10 to 15 grains - this acts decidedly on the skin & is very serviceable -

(G). Acetas Hydrargyri - this is white pearly plates - precipitate the Protonitrate of Mercury by the Acetate of Potash wash it & dry it - this is very little soluble in water - is an Antisyphilitic in the Dose of 1 to 5 grs - is the basis of Keyser's Sugar plums which are very active -

(H) There is also an Oxidate of Mercury -

(I). The Cyanuret has been lately introduced (the former Prussiate) Boil the Red Oxide of Mercury & Prussian Blue, & they will ~~crystallise~~ in quadrangular white shapes, having no odour, a styptic taste - infuse 24 grs in 2 ℔ Syrup - Dose ℥ iss ij - Champier a man of great eminence in Paris prefers this - I know not how justly - each physician seems to have a favourite - its utility is in Syphilis -

(K). Mercury with Sulphur forms the Black & Red Sulphur -

Set. 1. Sulphuretum Hydrargyri Nigrum, or Ethiops Mineral contains 1 part of Sulphur & 1 of Mercury triturated together is impalpable & has little odour - 2. S. H. Rubrum. (or Cinnabar when sublimed) is either natural (native) or artificial - it is not often internally administered but chiefly employed in fumigations - by scattering a few grains upon coals & wrapping your Patient in a Blanket, a speedy tho' not equally safe salivation results - it irritates the lungs, excites cough & if Phthisis Pulmonalis exist exasperates it -

(I) Sub-Sulphas Hydrargyri Flavus, or Turpeth Mineral, contains 2 parts of Mercury & 3 of Sulphuric Acid. boil this to dryness & you have the Per Sulphate - add Boiling water & the Sub Sulphate is produced - it is very active tho' not often used as an Emetic - dose as such 2 to 3 grs - as an alterant ½ - it is also used as a Sternutatory with Starch or powdered Liquorice -

I have now finished my account of the Mercurial preparations -

Lecture 44th.

C. Muriate of Barytes, or when dry the Chloruret of Barytes exists in the form of crystals, is very soluble in water & decrepitates in the fire, & is by water transformed into the Hydrochloruret of Barytes, taking up from the water Hydrogen - it is prepared by fusing together Sulphate of Barytes & Chloruret of Calcium - In large doses this is a violent poison owing to its local action on the Stomach proving a poison, & its activity greatly affecting the

Nervous System - In small doses it is a general excitant like the articles of this class already described (viz Iodine & Mercury) it particularly affects the Lymphatic System & hence produces absorption - for this cause it has been used in Scrofula of the Lymphatics, Mesenteric Glands, White Swelling Cold Tumours &c & has acquired great reputation in Scrofula - however its utility here is doubtful & it is prejudicial in Scrofula of open Ulcers & when there is excitement of the system & on the contrary when the glands have indolent affections without a disposition to suppuration - This is usually given in solution - 1 part of the Chloruret in 5 of water - Dose 5 to 10 gts twice or thrice per day -

D. Hydrochloruret of Lime (or Muriate) resembles the preceding - exists in prisms - is very deliquescent - soluble in half its quantity of cold & Warm & in every proportion of Boiling water - To obtain this heat the Carbonate of Lime with Muriatic Acid & evaporate it to dryness - its use is the same as that of the last article - This has had great reputation in Scrofula but has not been successful enough to have attained a decided reputation, however in that disease in which at times baffles every Remedy this medicine at times succeeds - The truth is that Scrofula differs according to its stages - hence in general no Remedies can be relied on - When only the Scrofulous Diathesis exists exercise & a generous but not stimulating diet are the proper & best remedies - When it is more settled, then an ulcer, a slight Hectic fever &c stimulation is invariably wrong - & the antiphlogistic the proper course - Dose of this 6 gts to ℥j of water - The liquor Calcis Muriatis contains 2 parts Muriate of Lime & 3 parts of Water

E Hydro Chlorret (or Muriate) of Gold - this exists in crystals of a deep yellow colour - its taste is styptic & disagreeable - Dissolve Gold (in leaf or as fine as possible) in aqua Regia (Hydrochloric & Nitric Acids) & evaporate it - this has been used in Syphilis & has at times enjoyed great reputation - this is however questionable & tho good in recent syphilis & at times when Mercury has failed has not been extensively used - Some years since it was adopted in the N. York Hospitals but I find they have returned again to Mercury than which it is no better tho at times curing when Mercury fails - it is usually given in substance in Pills ½ gr - or is applied by frictions to the mouth - ¼ to ½ gr & salivates like Mercury -

Narcotics.

You recollect gentlemen that I formerly made a ~~division~~ section of Stimulants into Narcotics - of Narcotics one of the first results from the exhibition is Torpor & it is also one of the most prominent - The Term "Narcotics" is given to a class of remedies possessed of general action which is attended by a peculiar train of Phenomena - their principle powers are exerted on the Brain & Spinal Marrow & Nerves - the symptoms they produce may be attributed to an exaltation, perversion & diminution of Cerebral functions - The Brain is the organ presiding over most of the functions & nervous system - it constantly exercises authority over most of the organs & tissues - it is the centre to which we may trace all impressions & powers of Sympathy. The Stomach, Heart & Brain are the organs to which the symptoms are directed - & this is only explainable on the general principles of

our system in producing the action of sympathetick irritation on any organ to the Brain - it is owing to the Brain's incessant communication that the irritations are reflected back to the mass of the system & some particularly susceptible organs are particularly affected - such is the only satisfactory way of explaining narcotism which seems a medium between the primary & secondary effects - The predominance of the Brain must be kept in view if we would understand narcotism - disputes have obtained among Physiologists & Physicians in regard to their character & power - some considered them as sedative, producing a diminution of the powers of life - by many others an opinion directly the reverse was maintained & is at present universally adopted - Cullen located these medicines among the "Sedantia" but at present we have no hesitation to consider them stimulating - These differences arise from a mistaken method of determining the action of Medicines - The whole system was formerly reckoned a unit, & what ever was a symptom of one organ considered also of another - the Brain was deemed a unit; its functions a unit & its excitement uniform - But our present views shew that all the preceding were false doctrines - One part may be excited & have an excess of action & other organs be in a reverse state, even having debility to the extent almost of extinction of its functions - Narcotic actions are more specially directed to particular organs for which they have a particular affinity, passing by others - These circumstances may teach us how it was that the most opposite opinions were held by the most respectable authorities - the state of the action of the heart & pulse formerly were supposed indicative of the state of the whole system - if the pulse were excited or depressed all the rest were thought to be in the same way.

The Arterial System however is but one part of the complicated animal & its state does not uniformly indicate the condition of other parts. In this point of view the Capillaries might with equal propriety be reckoned & which tho' attached to the arterial system act independently & entirely by their own force. hence there may be an excess in part or all of the Capillaries & a diminution in the veins. this we will witness in Narcotism. The Physiological effects of Narcotics are very various, & we must depend on different methods to comprehend them, for as in other classes we may analyze their results on the different organs & tissues. As these remedies are very important & fall under your notice often in very critical situations it is necessary that you should pay to their study a particular attention in order to derive as clear knowledge of their operations as possible. we will in order to this consider their actions on the Stomach, Heart, Brain & nervous system. When a Narcotic is given the first effect is perceived by the Stomach, if which be healthy & the dose small (1/4 to 1/2 gr opium, or so) we have often often simply stimulation & it may invigorate. In the common dose (1 or 2 grains) we soon have feeblness. in large doses probably vomiting will be a result, & if the stomach be irritated this is almost a matter of course. It is owing to this that suicides are often disappointed who resort to Narcotics. when the stomach however is healthy irritation is not so common. When large Doses of Opium are taken Gastro-Enteritis is almost always a consecutive effect & often Death is the result of gastric inflammation after the effects on the Brain & Nerves have passed. Keep this steadily in view for I have seen much injury result from stimulation when such a course was pursued in spite of the contra-indications of nausea &c. The action of Narcotics on the Circulation is one of their most uncertain effects, varying in different Temperaments as well as in different states of the

organs, & it is owing to their various effects on the Circulation that so different opinions as to their action have obtained - in some cases the pulse is invigorated & accelerated & animal Heat &c developed - in others directly the reverse happens - what however is commonly seen by most observers is the inequality of the pulse - it is regular & intermittent strong & weak &c The action of Narcotics then is to disturb the system, but in their modes of effecting which they vary - this partly arises from their immediate influence on the Heart, partly from their results on the Brain, Spinal Marrow, Sympathetick nerve &c by means of which a communication is kept up between the Brain & Stomach - Fullness & Slowness of the pulse is a common & almost ~~general~~ uniform symptom towards the close of the effects of a large dose - This has been explained by N—— very correctly - he attributes this to the State of the capillary circulation - the capillaries have great irritability, & the secondary effects of Narcotics being to diminish action this is therefore strikingly evident in these vessels - hence the blood in them stagnates - the face is turned & the lips often Blue &c the whole capillary Circulation is languid, the nails are Blue &c the skin if pressed continues white - the Blood from the heart & arteries does not enter with facility, but refluxes & stagnates on the larger vessels, accumulating on the heart & thus producing a fulness which is however independent of the energy of the Circulation - Another thing indicating the general depression is the cessation of the secretions. The Mucous Membranes are dry, the Bowels constipated, the urine lessened - Perspiration is however often increased owing to Capillary Turgescence & this is mostly passive - when we examine the Brain we find the medication of Narcotics very evident - the Brain & nerves are affected in proportion to their quantity - if this be small, the stimulation is very decided - the faculties become brilliant, ideas pass through

+ The late Mr Gibbie whose eloquence so delighted the American public never made a speech till he had swallowed a half to a full wine glass of Laudanum, in order to render the flights of his Imagination more Brilliant.

+ It is owing to this that the messengers of the Turks who have no couriers & who run for several days & nights without stop carry Bags of opium - Russel states that whilst he resided at Smyrna a messenger arrived at Constantinople & before he could reach the Pacha to deliver his instructions fell speechless - a person however discovering that his opium bag was empty, soon revived him by the taste of some of this stimulant & he recovered -

the mind with great rapidity & are generally pleasing - the Imagination is exalted & hence narcotics are taken by many who read or write works of Imagination + - In stronger doses the mental energies are quickened & the mind confused with the rapidity of a thousand ideas crowding it - this state is however soon succeeded by Torpor the senses are weakened, (sight & taste inactive &c) - Pain if it had existed is not felt - but this owing not always (tho' occasionally) to the discontinuance of the disease, but to the loss of perception on the part of the Brain - the pain usually returns after the effects have ceased. The Muscles also exhibit the effects of narcotism on the Brain - they are to the Brain what the pulse is to the heart & always indicate its condition - while the doses are small they are strengthened + - When the system labours under the effects of full Doses of Narcotics we have prostration, debility, loss of power in the Brain, & of contraction in the muscles - interruption of volition - if the Doses now be increased the stimulant effects are rapid & narcotism is fully developed - The Brain's power is entirely lost, there is congestion with vascular organs - the action of the Capillaries ceases, there are congestions on the liver, lungs, stomach & Brain - now a new set of Phenomena are developed, not the result of narcotism but of congestion, for Apoplexy exists - & when a Patient has taken narcotics it is necessary to distinguish this from other effects, for the patient often dies from apoplexy when the narcotic effect has ceased acting, & I believe many of the deaths are occasioned in this way. In Brain there is affected in a two fold way - 1st by loss of vitality & excitement & 2ndly from Compression induced by Sanguine Congestion - If the Head be examined 'post Mortem' it is always loaded with Blood - then

will be found Bloody Serum in the ventricles & Arachnoid Membrane, at times effusions of Blood of the cortical part of the Brain which is most vascular is rosy - When the cerebral excitement is considerable & there is congestion, we have head-ache, vertigo, profound respiration, at times sleepiness, the patient being easily roused, but soon again falling to sleep, but this is not always so - Narcotics in the very largest doses render respiration irregular - producing stupor - breathing is rapid or slow & stertorous - there are hallucinations, convulsions & subsequently Death. This is the state & these the symptoms to which the appellation of Narcotism is given - & those medicines only are Narcotics which produce similar effects - Some of the narcotics act only upon the Spinal Marrow, exciting only tetanic convulsions & usually opistotanos, but not affecting the mind. These then are entirely different having an action chiefly on the Cerebrum & Cerebellum - they occasionally indeed display the other effects of Narcotics but not universally - Death results both with & without Coma - Sleep is one of the phenomena of Narcotics & arises from the diminution of irritation on the Brain & of its perceptive faculties - caloric light &c are no longer perceptible to it - absorbed the stimuli of life from an individual & you have a similar result - there is Torpor & sleep as in the other case - sleep is not however always produced, but on the contrary at times restlessness & watchfulness - If the Brain be excited & Irritation have mostly disappeared they increase Irritation which Irritation creates stupor or convulsions & not sleep - we may have Narcotism exhibited without sleep - They also have an Anodyne effect - that is they allay pain but this also is uncertain - The diminution of pain caused by Narcotics is in consequence of a Lethargic

its preparations.—

of sensibility - the irritation is either not transmitted or not perceived - the anodyne effect results then from suspension of Perception - From this view of Narcotics you will discern that their medication is various - you must not expect always to see the whole of the symptoms which I have detailed in one case but you will generally find most of them present - they prove the organic tissues to have lost their powers - The irritation of the system is diminished & the action of all the parts enfeebled - This debility however we have seen to be the consequence of excitement on the Brain - this is the centre & on it there is congestion its functions are no longer natural & all the Phenomena hitherto described arise in consequence of their suspension - The Therapeutick principles of Narcotics vary greatly & there is something peculiar in each which account instead of detailing generally their Therapeutick Principles, these we will detail in speaking of the individual members of the class - & which we will do in the next Lecture.

Lecture 45.

(A) Opium. (from οπος, juice) is without exception one of the most important articles of the Materia Medica. & than which none is more celebrated for its antiquity - its abs ence could scarcely be supplied - By varying its modes of exhibition, by combining it &c different actions & operations are produced on the system & even when we cannot entertain hopes of a cure we may by its means sooth the passions path from time to Eternity - Opium is the product of the Papaver Somniferum of Linn, & is Polyandria, Monogynia, Papaveracea = Opium is not a peculiar product of the Papaver but exists also in several other species - The Poppy was early known to the Greeks & Latins

but who principally valued it for its bland & nutritious oil contained by the seeds & which they employed as we do the Olive oil - however there is not wanting evidence that the Greeks were aware of its medicinal value - Hippocrates often speaks of the Licorium & attributes to it the effects of Opium - Pliny mentions Peplon which is also a purgative - Hippocrates states that the Licorium was given in case of cancer in the Uterus - So that there can be no question on the subject - the Poppy is extensively cultivated in Persia, Turkey Bengal &c - The production of Opium is very great & its consumption enormous - There are two varieties, of which that containing the white seeds is preferred in the East, & that which has Black seeds in Europe - this is the more hardy & stands the old better - the white attains a greater growth & is more produced in the East - Opium is the inspissated juice expressed from the capsules of the plant - the seeds are contained in a large capsule from which flows the juice & assumes the forms of tears - This is called by the Turks Ophion & is seldom found in Commerce - Travellers, in regard to the process of making Opium state that in the evenings the old women & children leave their villages & go to the trees into which they make incisions in the capsules, preferring this period to the day because when there is dew the juice will not so soon dry up - from the incisions exudes a milky juice which dries & forms a Brown gum which is scraped off the next morning - it is then put into pots & inspissated still more - some assert that in this state it is rolled into masses & sent into Commerce - but it is more probable that an extract is first made & Opium mixed in - it is also said & which is true of some Opium, that Opium is obtained by boiling the heads & branches & from these at once making an Extract - The best of all, is the Turkey Opium which is exported from Smyrna; much of this is the growth of Persia & only exported from that city - the rest is native in Asia Minor - This are obtain in masses - these are Brownish within & fleccent are

adhesive - externally they are covered with Poppy or Tobacco leaves & put into Boxes with a capsule of the species of Rumex - we never get the Turkey Opium in any other way - there are always more or less capsules & at times sand, lead &c to increase the weight. Good opium is smooth, contains few impurities, & if moistened & rubbed should have a polished Brown surface quite smooth - when old it becomes very hard but is still Brown & breaks with a shining fracture - The Turkey Opium has a peculiar & virose odour, which is always recollected - the Taste is bitter & acrid, creating heat in the Tongue & fauces & inflaming in a candle - It is partially soluble in Water Alcohol, Æther Wine, Vinegar & solutions of the Vegetable Acids - when rubbed by the hand in water 5 parts in 12 are soluble, 6 are suspended & 1 part is insoluble, remaining unaltered & presenting the appearance of Gluten in Wheat - This insolubility is always a characteristic of good Turkey Opium. Alcohol takes up more of the narcotic principle than Water & Proof Spirits are its best menstruum - Besides the Turkey we have the Bengal Opium from E. Indies where it is made & whence it derives its appellation - this is usually black more compact than & not virose as the preceding but Empyreumatick - its Taste is as bitter, but it wants its acrimony - it is more nauseous - in water it leaves no insoluble residuum unless as occasionally happens, it contains foreign matters - 5 parts in 12 are dissolved & the rest suspended - this characterizes it from the Turkey O. There is also a factitious Opium - 15 or 20.000 ℔ of this were some time since imported into this country, of which 9000 were sold in N York but afterwards taken back, which I examined for the German Society - it seemed an Extract of the Plant & (from its smell) to contain Tobacco - with it was mixed much oil which exuded - this is a fraud occasionally occurring & to be condemned in the most indignant manner, as liable to completely deceive the Physician -

7th Resin -

Bad Opium may in general be characterized by its softness & oily nature its blackness not being adherent, not possessing much odour & tastes by its streak on white paper - but which last characteristic (Dry) is not a safe one since this depends on its age - Many analyses have been instituted to discover its chemical composition, of which those alone of Modern date are entitled to confidence: from these examinations it seems to contain 1st a fixed oil, 2nd caoutchouc in small quantities 3rd vegetoanimal substances which contain the gluten 4th & 5th Mucilage, 5 Fecula. 6th vegetable remains - all of which are unimportant. 8th Morphine, 9th Meconine 10th Narcotine, 11th An acid said but not known certainly to exist) The Morphine Meconine & Narcotine are the only important ingredients - Morphine was discovered by R , Narcotine by DeRosne - In regard to these - In regard to Narcotine & Meconine which contain all the active principle there was confusion among chemists & there arose different reports in relation to their Physiological effects on animals. Morphine is variously produced - Robiquet macerates 300 parts opium in 1000 of water for 5 days - he filters the solution & adds 15 parts Calcined Magnesia, by which all the Carbonic acid is driven off - (by the way, the addition of an acid should not cause effervescence) The mixture of the filtered solution & magnesia is boiled 15 minutes - the sediment is washed till the water passes off colourless - this gives you Meconate of Magnesia in excess & pure Morphine - the magnesia is added to decompose the Meconium & Meconate of Magnesia is formed. Treat the sediment with cold & weak alcohol (say 24° of Beaumé) less than first Proof & it takes up the colouring matter, then use a strong Alcohol (say 32° degrees B) - when it cools the Meconium crystallizes - Ammonia may be substituted for Magnesia - this precipitates the Meconium - Evaporate it to 16 & add Ammonia which gives you a second precipitate - then digest it in Alcohol - to be quite pure, several &c are employed, but which for medicine are not very important - Morphine is very important in the composition of Opium -

it exists as I said with Meconic acid which is in itself not very soluble but is rendered more so by the addition of the vegetable acids which is its chief utility - when pure it has little effect - Pure Morphine is given in substance without effect. Before I was aware of this fact I had used it very extensively & did believe its alleged effects on the system, having often given 4 or 5 grs without inducing sleep or tranquillity, but found the salts only therapeutic - it is also soluble in fat oils & which increases its activity - hence oils are not as formerly considered antidotes to Opium, but on the contrary increase its effects - in cryst salts we find it in small, transparent Pyramids sparingly soluble in Boiling Water, but more so in Alcohol - it has all the characteristics of Alkalies, turning Vegetable Blues to Red, forming salts with acids - melts at a low Temperature - inflames easily - its affinity is very low & hence it is decomposed by almost every substance - when with an acid it has no activity - it creates a red colour with Iron oxyded to its maximum, & a Blue with the salts of Gold.

Narcotine was discovered by De Rosne & hence received the appellation of Salts of De Rosne - is very active but differs from the former articles in properties & effects - while the former both & calms irritation, this irritates the pulse & is the portion of Opium which excites convulsions - Observers remark that the effects of Opium vary & are marked by 2 opposite characters, a fact, proved by chemical analysis - Narcotine is never given alone - The Physician's object should be to neutralise its action - when dissolved in oil its action is much increased, but unlike Morphine vegetable & Mineral acids lessen its violence - hence it is active or inactive as it is pure or impure - When given pure, Narcotine creates a stupor easily to be mistaken for sleep

but generally there is a stertorous respiration, the eyes are open & the patient cannot be roused. Death generally supervenes when a grain or two have been taken, in 24 hours, preceded at times by convulsions.

The quantities of Opium in commerce are very great, but its rarely or never used as a medicine in the E Indies or China, being indebted to luxury for its great consumption. Mahomet forbade his disciples the use of wine & ardent spirits, but the prohibition of the Prophet has been superseded by this drug stimulus instead of Alcohol-ic liquors by the Turks. In China & Japan they usually inhale the smoke of Opium - the bowls of their Tobacco pipes when half emptied are filled with Opium & which is very intoxicating. In Japan they mix Arrac & Opium & are speedily seized by furious delirium & commit great devastations. they often sally into the streets in a fit of frenzy & are killed as madmen by the inhabitants. this they term "running a muck". In Constantinople & the East generally, enormous quantities are taken (3 ij or iij per 24 hours is common & Rapel says Jvj per diem). In Persia & in the Towns of Turkey are houses like our grog shops in which Opium is prepared usually with aromatics, in small masses. 30, 40, or 100 grs are given on plates with cups of coffee & numbers take three every day. they take a larger or smaller Bolus every day & throw themselves into an attitude to enjoy its effects. Its intoxication is at first delightful, but afterwards horrid. the appetite is lost. the nervous system shocked & the sensations watched till another dose has been taken. The Turks estimate Opium so highly as to stamp on it "Mac Allah", (the work of God). The Turks previously to a battle distribute Opium

A woman some time since I knew (for many of our women indulge in this intoxicating drug) whose constant employment of Opium had found her to consume a handsome property - reduced to poverty & in great distress she finally became an inmate of the Alms House, where her distress at being deprived of it was very great - her habits were not known & but small quantities were given her - she died in about a week or ten days after her admission -

among the soldiery under whose effects the Turk rushes into the thickest of the combat reckless of the horrors which surround him. Suwarof in his military catechism, instructs his soldiers "to fear a Turk even when he is dead!" for often in the last moments of life they collect all their energies to inflict one blow of the sabre or to pull a trigger.

Opium's habitual use weakens the stomach, impairs digestion, emaciates the constitution, fills the face with wrinkles & stamps the front of youth with all the signs of age which indeed are experienced in a short time. Those habituated to its use are when deprived of it taciturn, morose & stupid, nor do they become their spirits till they have taken another dose of this drug, which proves at once the bane & the delight the destroyer, & the pleasure of life. Some interesting experiments have been performed by Liston & Sir Wilson Phillips to determine the question of its sedative & stimulant nature which I have alluded. We have seen both sides to be partially right. These experiments have caused some light to shine on the subject. It results from them, that opium applied immediately to a part acts as any mechanical irritant. (e.g. the heart.) it has therefore specific power but, secondarily, general phenomena, sooner or later appear & which depend on the power of absorption of the part, for a quick or tardy action. The Heart & Arteries are excited by small doses. Larger ones soon cause a sedative effect. From all the experiments it results that it is only when the Brain is affected by Opium after absorption that there is diminution of arterial action. It appears then that opium entirely affects the system through the Brain. the nature of its disturbance & suspension of nervous energy, is as yet unknown.

Lecture 46th

In the last lecture I noticed the Phenomena produced by Opium - these effects depend on the quantity given & the disposition of the system & vary as the doses are small large or excessive & also as the system is healthy or diseased - Small Doses, (say gr ss) generally calm irritation, induce sleep, appease pains & give birth to pleasant reveries & agreeable dreams, & it is in the production of such effects that Opium usually proves so salutary - in such doses congestions of the Capillary system are rare, the greatest effects usually being the production of Diaphoresis alone - In large doses are exhibited the Phenomena of Narcotism - the quantity necessary to effect these results varies in relation to the Constitution & nature of the Disease - In Healthy, & persons unaccustomed to its operation 4 grs usually is sufficient for this purpose, but much more is taken in disease without producing Narcotism - e.g. in Tetanus, where 10, 15 or 20 & in some cases 30 grs of Opium are given without causing any of its usual effects - In Tetanus the Spine seems the seat of disease (chiefly) & is so much affected that the action of Opium on the Nervous system is almost entirely suspended - Simple Narcotism (caused by 3 or 4 grs) seldom destroys life, the patients in general, soonr or later recovering - the Capillary system is affected, but its recent of action soon ceases & unless terminating in occasional Congestion, ends favorably - Excessive Doses (8 or 10 grs) produce complete Poisoning, usually exciting Apoplexy, which is usually the cause of Death when resulting from large Doses - From the experiments of Bichat, Mr Philip & others we are taught that the disease is dependant on the head, owing to the suspension of the cerebral influence over Respiration - Respiration may be kept up artificially (by Bellows) but when these means cease, the patient relapses, unless the action of the Opium can be counteracted - Opium affords a very common means

of accidents & of suicide on which account Physicians in large cities are often called on to counteract its influence - The best means for this is to evacuate the stomach - Emetics are with this view ordinarily administered at first, but if its action be violent they fail, owing to the sensibility being impaired & more particularly to the changed action of the Brain - When the stomach resists Emetics evacuate it with the Stomach tube & strive by all means to get rid of the opium in the Stomach - the patient should be roused from the state of drowsiness, & this alone at times cures him - force him to walk - whipping has been recommended, & cold applications to the head should never be omitted - water should be dashed over his face & a cold Bath applied to his Head - affusions are very prompt in affording relief & I am inclined to believe, ~~that~~ except when the dose is very excessive & destroys the Brain, that it is scarcely possible to lose a patient if we have cold water - I believe it has never failed - you should dash pitchers of water on the heads while in the Stupor & apoplectic State & you will afford relief - But Death often results not as an immediate effect, but from consecutive inflammation of the Lungs, stomach & which is very common - The patient suffers greatly with all the symptoms of acute inflammation & is to be treated as if arising from any other cause, by diluents drinks &c - Carbonate of Ammonia &c are usually given, but stimulants are very wrong, nor have I ever known a case where it did not prove fatal - as a remedy Opium is administered in the first place

A. as a Hypnotic, or to procure sleep for which purpose give 3 a 4 -

If the system be irritated only small doses are successful, & unless we know what precise dose suits the system we are often disappointed - 3 or 4 drops of Laudanum or Black Drop often procure a good night when the system is irritated, when 30 or 40 drops will completely fail -

+ I once had a suspicion that I lost a patient ill of Mania a Potu in this way for he sunk so low that I gave him very large doses, & from that period I have resorted to the liquid preparations –

β. As an Anodyne, or to allay Pain we should prescribe a full dose (1, 2 or 3 grs) - Opium does not always however relieve pain, tho' in general considered as a specific - thus it seldom succeeds in acute Inflammation, when large doses stupify but yield little relief on the contrary render more uncomfortable & unpleasant the patient's situation - It has at first it is true a distinct impression, but in the end is mischievous. It is only when pain is nervous, i.e. when there is irritation in the Nervous system independent on irritation or Inflammation of the sanguine capillaries that Opium acts as a charm - in such cases we are certain of relief - In the pain caused by Intermittent Fever Opium is given with Sudorifics - Dover's powders is here perhaps the best.

γ. As a Narcotic or to disturb - here give the largest admissible Doses for the object is to approach Narcotism, to lull the nervous affection for a time - It is commonly given as a Narcotic in the Nervous affections & particularly in Tetanus, which disease it occasionally cures - here 10, 15, or 20 grs are required - Whenever you employ Opium as a Narcotic recommend its use in the liquid state - I think whilst reading cases of Tetanus treated with large doses which have proved fatal that their terminations depended on the size of the Doses - the effects of Tetanus disappeared but the remedy proceeded. 1 or 2 grs per hour whilst they impair digestion accumulate to a large quantity in 24 hours & the disease itself having subsided there is a risk of the Poisonous effects of the Opium - If however you administer Opium in the liquid form you incur no such danger - the same remark obtains in Mania a Potu - Opium is also given to create a disturbance in Intermittent Fever - Dose here, of Laudanum 80 a 100 drops - of Opium 2 or 3 grs - it has not a strong effect here however - the proper period its just before or at the commencement of the cold stage - also in Continued Fevers - In Typhoid or low fevers many Physicians employ it but I do not consider it a prudent practice - There are in low fevers at times nervous Lesions & here Opium injected into the Alimentary Canal often

allays irritation - & its soothing effects are often very salutary, tho' it frequently disappoints - the cases of Typhus Fever with which it is compatible are those attended by constant Tremor of the muscles, not subsultus Tendinum which is quick, sudden & well marked, for here it is injurious but simple Tremors.

5. As a palliative, Opium is only serviceable in relieving Pain, with which view its external application is often good - & you avoid interfering with the stomach which is greatly injured by its too frequent exhibition - it is given when there is violent pain as in Cases of Cancer &c - In infections it does not interfere with digestion & in slight cases of such diseases the watery solution should be rubbed on the Thighs & arms & an opiate plaster be applied. -

The preparations of Opium are very numerous: it was long supposed that there were two different principles & modes of action in Opium & under the old Pharmaceutick systems it was submitted to many processes - Beaumais submitted it to ebullition for 6 months night & day with a view to destroy its Resinous portion which he thus thought to get rid of - There are twenty or thirty preparations in the older Books, all of which consisted in processes to prolong ebullition in order to separate the gluten, or to combine it with vegetable acids which is better -

Opium is given in substance in Pills, Tincture &c - In this country 'tis usually taken crude a plan whose abandonment I would recommend - if recent it is always more or less irritating - Narcotine abounds & its soothing operation is not certain - the older it is, the milder & I am disposed to believe that Narcotine diminishes with its age - I have Opium of 12 years old & it contains little or none but pure which when I extracted it without difficulty. In substance the form that is best is the watery extract, to prepare which macerate Opium

in warm water, till all that is soluble be taken up then filter &c-
-vaporate to a consistency - in this way no foreign matters are
taken up & you have a very mild preparation - this is always used in Eu-
-rope & generally in England where the physicians never use it crude like
the Americans = Opium thus prepared is more expensive on account of its
loss, but the dose is more certain - when crude it is uncertain & is
mixed with sand - when you think you are giving ℥ss perhaps you
give only ℥j - Robiquet lately proposed another plan which I cannot
too highly praise, but which is expensive & suits only particular
constitutions - Opium it is well known disagrees with some producing
nausea, head-ache &c on the days following its exhibition - Robiquet
directs the watery extract, (made in warm water) & to digest it in Sulphuric
Ether - this only takes up the Narcotine & by repeating this process
twice or thrice you have only the Acetate of Morphine with a little
Gummy matter - I have never known it to disagree with those who
could not take the common forms - Dose gr ss to j.

There are several other preparations of Opium - e.g. Electuari-
-um Opiatum & Confectio Opii, of which the latter consists of Opium
with Aromatick seeds, as Pepper, Ginger &c, & which is very good in
Chronic Dysentery & Diarrhœa, being superior to all others & a substi-
-tute for the famous Mithridate - Opium in substance with Ipecacuan-
-ha constitutes Dover's Powders which is also a very good preparation -
it is generally however used as a Sudorific & is not good in Fevers, increasing
the febrile diathesis - it is usually given in the commencement, you should
first subdue irritation of the System - The "Tinctura Opii" (Laudanum)
is very commonly employed in the U.S. yet it is the very worst preparation -
Alcohol takes up more Narcotine than the salt of Morphine; this is indeed the
most irritating form & should ~~be~~ rarely or never given - some in this
city do not use it so freely as formerly - Opium disposed in

wine forms the "Laudanum of Sydenham" not much used in this country, but in Europe more often than common Laudanum - this contains Opium ℥ij, Saffron ℥j, Cinnamon ℥j & Cloves ℥j - The whole to be digested 2 or 3 days in ℔ Sherry - Acetas Opii (Black Drop) is a favourite in this country but is objectionable as uncertain for want of a regular formula to make it - The common form is to take ℔ of opium macerated in 3 pints of Vinegar, ℥ij bruised Nutmeg, ℥ij saffron boiled to a proper consistency (but which varies according to notions) add ℥iv sugar & ℥j of yeast - this should digest 7 weeks - but the apothecaries neglect this & apply a mild heat for 2 or 3 days which does not answer: the object is to cause fermentation, ~~which~~ to which action the original form was indebted for its mildness - It has long been observed that this preparation is not made elsewhere or by the family in whom it originated & I suspect this is owing to want of fermentation - to understand the importance of fermentation you need only recollect what I said when treating of Alcohol - Dose of this medicine 5 to 6 drops, but the quantity of Opium in it is never the same in any two different preparations - There is a French preparation very similar to the preceding originally coming from l'Abbé Rousseau - it is "Vinum opii Fermentatione Preparatum" - ℞. 12 ℔ honey, 3 ℔ of warm water, which dissolve, & put them into a retort in a warm place - when fermentation is in full operation add 4 ℥ opium dissolved in 12 of water & ferment for a month - here I suppose Acetic & Malic acid are developed - at the end of this period filter it & add ℥iv Alcohol Dose 12 to 15 drops. In both the foregoing Morphine combines with vegetable acids which moderate its action - Dr Porter recommends as a substitute for the Black Drop, & which is said to be very mild & simple the Citrate of Opium - ℞ Opium ℥iv

†AD. 1824.

Citric acid ℥ij, water 1 pint - macerate three a few days, filter & add ℥ij Alcohol - To prevent fermentation - Dose 5 to 60 drops - & it is highly spoken of in London - Syrups are more pleasant & the Citrate of Morphine may be given with any -

B. Lactuca - (Sativa & virosa). Lettuce was long known as a Soporific & was used by Galen in his own case & softened the decline of his life - but opium was not known to be contained in it till Professor Coste had subjected it to experiments - Since that period it has been used in medicine - cut off the top of the stem when the plant flowers, & a white juice exudes which absorb by a fine moistened sponge & cut off another &c - squeeze the juice from the sponge into a vial &c - this is much like opium - probably Morphine abounds with a vegetable acid - it also contains Caoutchouc, Mucilage Resin & Extractive - Dr Duncan & Sandamon it was employed as a Hypnotic & the former preferred it in Phthisis Pulmonalis to Opium - & Sandamon in Gout - we may however substitute for it the Acetate of Opium as it is very expensive - 5 to 8 grs shew its full effects -

C. Tela Arachnoidea - (Cobweb) - This too has been used as a Narcotic or anodyne - Spiders & their webs have long been vulgarly considered medicinal, but Dr Robt Jackson I believe is the first Medical authority for their employment - If we were to trust his description we would consider them active & powerful for he speaks of them as a specific in Intermittent Fevers, says they always produce sleep & prepare them to Opium - I fear his account is much exaggerated having often failed myself with them - The year before last a graduate of the University paid some attention to this subject & put several cases of Intermittent Fevers in the Alms House at his disposal - both in Intermittent Fever, however, & as an Anodyne it failed & from repeated failures I consider Dr Jackson

+ Calido sub pectore mascula bilis
Intumuit, quam non exturxeit urna Cicuta
[Spectator No 55. — — Persius Sat. 5.]

mistaken - But it has been said that the web must be that of the Black Spider & collected in dark cellars - but we with this we were unsuccessful. Jackson called the Dose 1 or 2 grs, but we gave ℥j or ℥ij without effect - I doubt very much however that he was mistaken & from his exalted character that he laboured under some of those errors to which all Physicians are more or less liable

Lecture 47th

D. Cicuta, the product of the "Conium Maculatum" is next to Opium the most important narcotic - It is a perennial umbelliferous plant, a native of Europe but which grows near our roads & in our gardens & is extensively cultivated by the Shakers in the State of New York, not however indigenous to this country - it is the 'κονιον' of the Greeks & Cicuta of the Latins. By the ancients Cicuta was employed to destroy State prisoners, & was the instrument of the death of Socrates who fell a victim to the fanaticism & superstition of the Athenian populace - he is described at one moment as conversing calmly & philosophically with his followers in the prison & in the next drinking the cup. It is uncertain whether our plant is the same as the ancient, from which it probably differs & of which the description of Dioscorides is so loose that tho' resembling we cannot be sure of their identity - Cicuta generally grows in cold & shady spots, & in which (as under hedges, or in the skirts of a grove) it is more active than when collected in the open fields - Cicuta at times is mistaken for other plants & thus gives birth to accidents - it resembles greatly the Parsley & its root is similar to the Parsnip, but of a paler it is Poisonous, but may be distinguished by the copper coloured spots on its tall erect stem. The lower leaves are

large, their upper surface being light & the lower dark - it is also known by its peculiar smell especially when fresh, which has been compared by some to the odour of copper rubbed upon the hand, by others to the urine of cats or mice - the odour is usually lost when it is dry but is usually distinguishable in the Extract or powdered leaf - it soon perishes & requires to be kept with much care & also to be cautiously collected - owing to neglect of this it is often unsuspicious & should not be kept in open vessels - When good it maintains a fine green colour & should as a general rule be used within the year, tho' carefully preserved it is good several years - The time for gathering is by some said to be just before flowering, but others in general recommend the period just before the falling of the flowers & which is the best - dry the leaves & leaflets when separated from the inactive stalk with a gentle heat & powder them & keep this in bottles or boxes well protected from light & air - when thus you can always depend on its certainty - In most animals Cicuta produces the most deleterious effects as do narcotics generally, but as exceptions to this rule may be mentioned the goat the asp & the ass who are not affected by the other narcotics - Given to man in excess it is highly poisonous but is not so usual a means of death as other articles of this class - the symptoms here are very severe, such as cardialgia, nausea, vomiting irregular pulse, somnolency or Delirium which is at times very ferocious - subsequently after poisoning it often affects the Nervous system - the patients' Mind is in a state of Dotage; & paralysis is very common; the vegetable acids are said to be its best antidotes, tho' they increase the action of Morphine - of its medical properties the accounts are various - like all Narcotics its action is characterised by various anomalies which depend not so much on the medicine as on the individual constitution & on the degree of Nervous excitement & the excitation of particular organs -

Persons accustomed to Cicuta take very large doses while small ones must be given to those who are not - 1 to 2 grs of good Cicuta have at times a decided impression on those unaccustomed to its use while in some 50 or 60 must be given - it in this way soon loses its power & it becomes necessary to increase the doses constantly on which account it is proper to omit its exhibition for a short time & resort to it again - It generally in the first place stimulates the Nervous System but is often succeeded by calming effects with a view to which Sedative operation it is generally used - but here we are often disappointed & cause instead of sleep, vertigo, tinnitus aurium, head-ache, nervous agitations & continual Twitchings & aggravating pain - its effects you thus see vary greatly - After having been long continued a febrile state ensues, thirst, quick pulse, General Heat increased as also the secretions of urine & Diaphoresis - it at times appears likewise to exercise an energy on the Lymphatics, since engorgements of them often disappear under its use - The Opium it seems to have two different modes of action & Founcroy supposed it to contain 2 different principles by which it augmented or allayed irritation - this is a suspicion not verified by experiments - like most Narcotics this has a principle to which it owes its action & which is obtained by macerating it in Sulphuric Ether & evaporating it on water - The Ether evaporates & a pellicle of a deep sea green colour skims on the surface - this seems a resinous Alkali - in doses of 1/4 to 1/2 gr it is very active on the head & nerves - Brandt calls this "Conine" - It has other (but inactive) principles as Resin, extractive &c - Hemlock was never given internally by the ancient Physicians; it was usually employed in enlargement of the glands & particularly when acute pain existed - I believe we are indebted to Stoerck a celebrated German experimenter for its first introduction - he published several pamphlets whilst at Vienna, & in them mentioned

many cases of cure & some where cancer had existed - this excited the highest expectations but which unhappily have not been fulfilled - the practice still however obtains, tho' perhaps rather as a matter of Routine - Dr Heyne having heard of Stahl's experiments, put 120 cases of cancerous affections under this treatment without an individual case of success - on the contrary proving injurious in many cases - Alibert also placed 100 women suffering from scirrhus under this course without the slightest success - It is then not a good system - i.e in genuine cancerous cases & often produces unpleasant consequences, particularly on the digestive organs: the only advantage which appears to result from Cicuta in such cases is to allay morbid Irritability; it is occasionally used as a Palliative, but as I said before cannot be relied on, which whenever we find to be the case in any constitution, we should abandon it immediately - But there are cases of cancer (& which I have myself seen) where comfort is increased - In Neuralgia Facialis which you know is an affection of the 5th pair of Nerves in the Face, but in Neuralgia it often fails - when there was debility or irritation of the Stomach it has often succeeded & so has Oxide of Bismuth after all Remedies have failed - In obstinate Sciatica, & Chronic Rheumatism, it is often given with sufficient success to justify this somewhat empirical Practice - It has been praised in Hooping Cough & when treating of Belladonna I shall mention some cases where it & other Narcotics have done service - In no cases probably is it more beneficial than in those of obstinate & painful ulcerations, particularly if they be pseudo-Syphilitic, indeed wherever these are obstinate & there is much pain I do not think it justifiable to omit Cicuta, for it often allays irritation, restoring likewise ease & a healthy disposition - In substance (Powder & Pill) in Extract & in Tincture it is given - it is best to powder the Pill, which if we do properly it is very certain - but the leaf must be good, & that

of the shops is usually guilty of faithlessness - The extract is often given but on which as it is usually made no dependence can be placed for it is made by infusion in water & evaporation - the proper mode is to inspissate the juice - moisten the plant slightly & submit it to pressure - inspissate the juice with a mild heat to the consistency of Honey then add powdered Cicuta till it has a pilular consistence - the colour is usually Black, the best known is that made by Battley in London in vacuo - here he inspissates it & uses only moderate heat, (for all the Narcotic Extracts are injured at the Boiling Temperature). this has a green colour & the full taste, whereas the odour is lost & the extract dry no good results, (lately I have given ℥j sans effect -) whenever you employ a Narcotic and change it, & when your Apothecary gets a new supply begin to the original dose or you may expect accidents - Dr Cullen in his Materia Medica mentions a young man who had taken 50 & 60 grs the apothecary whom he sent to daily, finally got some new & which being newer & stronger than what he had before killed him! this shows the importance in changing a Narcotic of always beginning to small doses & increase them rapidly - with this view the dose is pg to 1 - but the system as I said is soon habituated to it & you may give 20, 30 & 40 grs per 24 hours -

E. Belladonna - of this there are 2 species, viz - Atropa Belladonna & Atropa Mandragora it is a native of Europe, being neither found nor cultivated in this country - it was long thought a virulent poison & in Europe often proves so, allurring the children by its beautiful Red berry & by being mistaken for Parsley - Banquo (in Macbeth) alludes to this when he mentions an "eater of the insane root which takes the Reason Prisoner" - at times the patient experiences a joyous intoxication laughing, dancing, singing, making grimaces &c - it is said to be

peculiar to the Belladonna that convulsions are usually produced: the berries are inodorous when recent & have a nauseous taste - its properties are preserved by drying - it is said like Morphine to have an alkaline principle (atropine) - The Belladonna is a formidable Poison, it is often used in regulated doses as a medicine - it has long been a favourite external remedy in Scirrhus & in Scrofulous ulcerations, but was first internally administered by Stoerk who was in fact the author of the general Narcotic practice - he recommends it in Mania, Tetanus &c; if we were to trust to him we might suppose that Mania generally yields to narcotics, but than this practice, (in the commencement of the disease) there is conjecturally not a worse. this I have been illustrated in the practice of Professor Barton & would not avoid remarking the speedy approach of Death, preceded by horrible convulsions - I believe this course has been abandoned, - but when the disease takes the Chronic form & all excitement has subsided, not improbably (& particularly if idiocy be developed) it may prove of service - One observation holds in Cancer in regard to Narcotics: that when there is a simple engorgement of the Lymphatics which often precedes cancer relief is often obtained - e.g. narcotic extracts often relieve a tumour of the Breast, Testicles &c which are unattended by pain & disperse abundant tumours - secondly "in genuine Cancer not a single well attested case of cure is to be found upon record". Alibert & all concur in this opinion - it is thirdly given to palliate & alleviate pain & thus to increase comfort which it not seldom does, tho it frequently disturbs Digestion & then proves very injurious - In Germany it has been lately, much extolled in Hooping Cough & if we trust the German authors is almost a specific: in this disease recommends 1/5 gr powdered every morning & evening to a child under 1 year - under 2 years 2/5 gr - from 2 to 3 years 1 grain - from 4 to 6 years 1½ grs - these doses are to be increased very

slowly - e.g. in the oldest girl 3 or 4 yrs &c. I have the experience of its value (the Extract's, for the plant itself is seldom used here) in 6 cases & each of which it rapidly alleviated, but its beneficial effects were not developed till an efflorescence appeared upon the skin - this is a very common result of Belladonna - in the six cases the disease subsided in 3 or 4 weeks; the common period is much longer & is generally relieved in no other way. Hooping Cough I consider entirely a nervous affection, i.e. of the nerves of Respiration & there is evidently a spasmodic contraction of the muscles of Respiration: if this theory be true we readily understand why Narcotics are often serviceable - besides exercising their own peculiar action, they suspend the disease - on the whole from what I have seen of the Belladonna I recommend it to your trial - Belladonna is also used in Mania, Hydrophobia, Paralysis & other nervous affections, but in Paralysis & Neuralgia I have employed it without effect - but a lady of this city who for 8 or 10 years had been afflicted by Neuralgia & had tried every thing recovered shortly after taking Belladonna & which was the last remedy employed - the cure has been attributed to the Belladonna & which probably did exert an influence - Like others of the Narcotics this causes a dilatation of the pupil - Romanus of Hamburgh first suggested the propriety of enlarging the pupil previously to the operation for Cataract & I believe it has been adopted by Surgeons generally. Stramonium also answers, one drop of the recent juice producing a speedy dilatation - in cases of chronic adhesions between the Iris & lens I have known them broken up by using this daily which first causes dilatation & afterwards a contraction of the Iris - within a short time it has been supposed to prevent the contagion of Scarlatina (a Dutch notion) which was proposed by Hoopland & by him very strenuously supported -

℞.- ʒj Ext Belladonna.- ʒij Syrup.- Dose 10 drops, or half a teaspoonful.

but I deem it very questionable. It produces as I before said an efflores=
=cence similar to that of Scarlatina. & Hallman thought to cure Scarlatina
by acting on the plan of administering medicines very minutely in order to
produce effects similar to but milder in degree than those of the Disease.
& which according to the Germans is a very good plan. In this country it
is undecided whether Scarlatina be contagious, it is certain that mem=
=bers of a family who sleep together have not communicated it to each
other & that out of a family all have escaped but one. Belladonna
is given in this country in only one form viz that of the Extract
of which the Dose is half gr to be increased to 10 or 12 per diem. but as
the Extract is ordinarily prepared it is not good.

F. Stramonium. is the product of the Datura Stramonium, generally supposed
to be a native of this country as it is of Europe & the E Indies, but it has been
doubted whether it is indigenous here. when recent it has a fœtid & rank odour
& a bitter & rank Taste. extracts are made by water & alcohol & all its parts
are active. it was introduced into medicine by Stork & highly spoken of as a Narcotic.
the same may be said in regard to its narcotic action as has been lately
mentioned of the Belladonna & Cicuta = like all Narcotics it acts on the Brain &
Nervous System, disturbing the intellectual powers in large doses. it excites a species
of Delirium approaching to unconsciousness. one of my patients (a female) lay
unconscious, for 2 or 3 days, muttering, with her eyes open staring & Blood shot. but the
effects were quite different from those of Opium; the patient could be aroused, yet
no correct answers could she give to questions & seems to have suffered greatly in her
intellectual faculties. Stramonium is prescribed as the other Narcotics, in nervous
affections where there are pains as a substitute for Opium. but of all the
Narcotics I consider Cicuta the best substitute for Opium to tranquillize the
System. most of the others (Belladonna & Stramonium in particular) excite too
much irritation. the sleep from Opium never resembles (nor do I like) that of
Stramonium. It is given in powder, inspissated juice, Tincture, Extract,

Ointment - its powder, like that of Cicuta must be protected from light & air - the Extract in general is not good in consequence of the deleterious effects of heat - the inspissated juice is preferable - the seeds are most active & should be bruised in water - The Tincture consists of ℥j of the leaves to 1 pint of Alcohol - The ointment is made by boiling the leaves in lard till the mixture become crisp - this is applicable to ulcers & Tumours -

Of Hyoscyamus Niger &c it is hardly necessary to speak since they have a perfect analogy to the preceding articles & resemble Belladonna & Stramonium in the influence they exert over the Nervous system - the Hyoscyamus is but rarely given & its active principle 'atropine' never - Extracts are made from these & they are to be given in small Doses 1 or 2 grs to be rapidly increased.

I have thus detailed the principle qualities of the most important Narcotics & those exerting an influence on the Brain - a few others are usually classed with these which like them affect a portion of the nervous structure but have actions totally different from the real Narcotics (e.g. Nux Vomica) I shall casually allude to these & proceed to the consideration of Antispasmodics -

Lecture 48 -

Among Narcotics are improperly classed articles which excite only a part of the Nervous System, & cause strong Irritation, without proving themselves capable of creating Narcotism - this division of the Materia Medica has no specific name, tho' evidently differing from Narcotics & never producing Narcotism - their action does not seem to affect the part of the Brain which influences the intellectual faculties & the powers of the Mind are unimpaired even in cases which terminate unfavorably - all their characteristicks indicate a high degree of excitement - When treating of Narcotics I said that their excitement was

succeeded by a subsequent depression, & suspension of the nervous energies - but this rule does not hold here - no depression or debility being perceptible - the usual effects of the present class are to awaken contractions of the nerves, but only affecting the voluntary organs & those of Respiration = even when the Spinal Marrow has been cut behind the os occipitis their full development is not prevented - nor does decapitation hinder the existence of Tetanic spasms - thus all the effects produced by the Alcoholic Extract of Nux Vomica results from its being inserted into the Mus= =cles; after this the Muscular contractions are instantly marked & the spasms continue even after Decapitation - there is then nothing similar in the general Phenomena of the present class & of Narcotics tho' they are usually classed together they cannot be used to induce sleep or to lessen pain - they have no effect on the sensibility which remains perfect till Death -

A Nux Vomica - the seed of the Strychnos Nux Vomica is found in the Islands of the Eastern Archipelago, in the coast of Coromandel & in Ceylon &c; it is a large fruit like an orange but with only one division which contains the seeds - it is round, pale coloured, ex= =ternally smooth, with a short hairy structure & of a very hard cohesive texture within - it is difficult to break powder & cut & should be treated with a rasp or file - its taste is intensely bitter - The chemical analyses of Pelletier &c detected in it a principle termed Strychnine & an acid with which this principle forms igasuric acid - it also contains a yellow colouring matter concrete oil, nux Brucine - the last acts with great energy on the Nervous System - exciting Tetanus & chiefly what is called "Opisthotonos" or convulsion of the muscles of the Back, tho other parts are also liable to it - Animals suffering

from this disease have not their intellectual faculties impaired, but die from asphyxia - when artificial respiration is kept up the fatal effects are delayed - after a large dose has produced convulsions they may be relieved by the use of a pair of Bellows - but unless the spasm affecting the muscles of Respiration be cured, Death ensues from suffocation owing to want of air in the lungs, not from a positively fatal action like that of narcotics, but from an interruption of Respiration in consequence of its effects on the Nervous system Fouquier recommends Nux vomica as a Remedy in Paralysis in which disease he has employed it & reported several cases where it proved of service & some which it cured - it is very remarkable that in cases of Paralysis the muscles affected, first fail its effects & not the healthy Muscles - owing to the report of Fouquier great expectations have been formed of its efficacy in this disease but unhappily they have been disappointed. I incline to believe that very few practitioners now repose in them much confidence - it often produces momentary contraction in Paralysis but this effect depends on contractions of the Spine usually - Nux vomica however may often prove injurious here - this is the generally received doctrine & it was formerly attributed to the muscles themselves but which is rarely true for muscles possess only capacity & not power - they are passive & Paralysis usually is dependent on lesion of the Nervous System - this is usually the case in active Inflammation terminating in Suppuration &c, or if the Brain be affected in effusions - this cannot be removed by Nux vomica, at least till the active state have subsided - My experience in the Alms House & in private practice has never beheld a single case benefitted - Dr Chapman confirms this - I have heard of relief of partial Paralysis by its means: e.g.-

(of the Bladder) & this is the most. Nux Vomica is given in powder in the Dose of 5 to 15 gr. but is seldom used. Water impairs its virtue & of the extract it forms the watery is feeble & unfaithful. but the Alcoholic which is made of strong Alcohol is very energetic. Dose 1 to 10 grs to be progressively increased. In Tincture add 5 grains Alcoholic Extract to ℥j Alcohol Dose 10 to 15 drops.

B. Strychnine, is a vegetable Alkali forming the principle of the Nux Vomica the product of the Strychnos Ignatius & Strychnos Colubrina & probably to be found in other species & has been lately introduced into medicine. it is a white powder or in small cryst. Salts. has no odour but a bitter taste & neither fuses nor volatilizes. it is usually obtained from Nux Vomica by treating it (in powder) with Boiling Water & evaporating the decoction to the consistency of a Syrup. add lime to decompose the Neutral Salt & it is disengaged & taken up by Alcohol. some colouring principles generally remain which may be destroyed by crystallization. Dose in Pills ¼ to ½ gr. in Tincture (3 grs in ℥j Alcohol) Dose 15 to 30 drops.

C. Pseudo Angustura. About A D 1815 in Germany so many accidents occurred in consequence of the administration of this in Intermittent Fevers that the attention of the government was directed to the cause & a commission of physicians appointed to ascertain it. they found that 2 species of the plant existed one of which was a deadly poison & which caused the fatalities. about the same period similar results were witnessed in France. the Bark was found to be a bark (originally obtained from Indians of S. America) of another tree by some deemed a species of Strychnos coming in quills & called false Angustura. it also comes in flat pieces & in which state you never find the false exanonation detects a principle called Brucine, much resembling

& used similarly to the preceding article - This principle is of a solid pearly white colour crystallized in small plates like Boric acid - it has no odour - a bitter taste & is prepared like Strychnine - Its dose & its effects are also the same, both acting on the Spinal Marrow & exciting Muscular Contractions.

D. Arnica - the product of Arnica Montana grows on the Alps & Pyrenean Mountains - its leaves root & flowers (chiefly the last) are used in Medicine - the flowers have an aromatick odour & a bitter aromatic Taste - the Root an acid & bitter Taste - the flowers snuffed up excite sneezing - of this plant there has hitherto been no very exact account - it is said to contain a bitter Resin & alkali tho' not detected is (owing to its similarity to Strichnine) suspected - taken internally it first excites gastric irritation, heat in the stomach, sense of weight in the Epigastrium & not unfrequently a slight febrile excitement - large Doses create spasmodic contractions similar to tho' feebler than those of Nux Vomica - it is not much resorted to here but is a favourite in Europe - In Germany it has been used in Paralysis - the accounts vary however some stating cures & others lamenting its ill success - I have used in this city but have never seen it do any positive good - Its fame is also great in Rheumatism particularly its Chronic form & it is frequently employed with this view in Europe especially by the common people - its use in Intermittents is also common & when this disease was epidemic a few years since near Heidelburgh it was said to cure it more rapidly than Bark or any other remedies - the poor throughout most of Europe use it in this Disease - In Continued Fevers particularly those of the Ady=namic character it has been employed by the members of the Razorian School, who you know inculcate that some medicines directly diminish the effects of stimulants; these call it a contra stimulant & highly extol it -

from its high character in Europe I should consider it worthy your attention –

These are the principle articles of the present subdivision – which is composed of articles acting on the Spinous portion of the nervous system, & which operate on different portions from hence they produce different effects & are given in different diseases –

Antispasmodics –

It is characteristical of these that they act specifically on the Nervous System – their mode of action are peculiar – They are difficult to define, but evidently control disordered actions of the Nervous System – In many persons having great irritability of the Nervous system – of whose Nervous Systems are largely developed & seem to have an excess of Nervous structure in particular organs, the slightest sensations are transmitted & cause contractions &c – In these Hysteria is common which rarely terminates in Inflammation; whatever be the mode of the Nerves' action over the System, these seem to act as Tonics on the Nerves – Most Antispasmodics are characterized with an Excitant operation; they act on the Liquors, excite the pulse, often develop animal heat & augment secretions – (they thus affect the kidneys, lungs &c), but they particularly exert their calming actions on the irregular actions of the Nervous System –

A. Asafoetida – the product of the Ferula Asafoetida has been already mentioned as an Expectorant – It is one of those medicines which more or less excite the general system, but act more prominently & distinctly on the Nervous system – It is cut in slices from the Root & a juice exudes which is when recent very fœtid – exposure of the air directly of this property & renders its flavour rather agreeable than otherwise – its

activity depends on its volatile oil which escapes on exposure to the air & is now separately prepared for medicine - it contains a purplish resin, Gum &c of no great consequence - In small doses it is an agreeable stimulant increasing the appetite for which purpose it is used as a condiment in the E. Indies & Persia & we are told by writers on cookery was also employed as such by the Romans - In large doses 'tis a gentle excitant of the Brain & Nervous System - In cases of great depression of Spirits, or what is commonly called the Blue Devils a few grains of Asafoetida produce a very striking cure & is excellent in what is called a moveable Nervous System - you find the person much depressed & soon relieve him by this remedy - many females could scarcely pass a tolerable existence without this valuable medicine - many nervous symptoms are also developed, such as flatus in the abdominal canal, Headache &c in all of which cases Asafoetida is a most valuable remedy - Dose in substance 3ss 4 or 5 grs - when first taken it often excites the peristaltic motion of the Bowels & hence is a good adjunct to Purgatives in Nervous females - (the Aloetic Pill is excellent - It is also given in solution - Rub up Asafoetida with water & most of it will be suspended & it may be given per mouth or anum tho' the latter is preferable when there is Irritation of the Stomach - Hysterical symptoms are almost always produced from irritations of the Abdominal viscera - (usually of the Uterus) - But if the Irritation be in the stomach or alimentary Canal the same obtains in the nervous - here you had better inject for if given to the stomach the symptoms are often aggravated owing to the increased irritation determined to the Stomach - This is the reason why Hoffman's Anodyne &c render the disease worse & often create Convulsive Spasms - A Tincture is made by digesting 1 pint Alcohol on ℥j Asafoetida - Dose ℥ss to ℥j but is not equal to an emulsion

attend to the quality of your Asafoetida - age almost destroys it - when hard & dry, & its odour is diminished you may deem it inert - when recent it is soft & fatid & may be depended on -

B. Gum Ammoniacum has also been previously described when treating of Expectorants - its action as an Antispasmodic is feeble - & what has been said of the preceding article may be applied to this & indeed to other articles of this class -

There are several other Resins now no longer used - next to Asafoetida (C) Valerian (the Product of Valeriana Officinalis) ranks - its Root is used - of this there are 2 varieties, the one growing in low & moist & the other in upland & woody soils - the former is a bulbous Root with hair like fibres - the other is larger tho' similar to the former than which it is better & more active - when good 'tis of a Reddish yellow hue - the inside should be white - some years since good Valerian was said to exist here - Valerian hath a powerful fatid odour & a striking effect on cats, whose erotic passions it excites & has a very powerful action - this is a good test of its value - it has a volatile oil to which 'tis indebted for activity - it also contains fecula which prevents its entire filtration - the best form is the Volatile Oil - as an Antispasmodic Valerian is given in Hysteria, Chorea Sancti Viti & Epilepsy - its whole energy being displayed in small Doses - all these diseases have the same character, arise from the same exciting cause & their location is uniformly on the Brain - tho' the exciting cause may arise in other organs always look for it to the Brain - it is only the transmission from the Brain that causes these diseases - Hysteria is the lowest form of these diseases & it is often difficult to point out the Diagnoses between it & Epilepsy - In all such diseases like the other Antispasmodics Valerian is at times successful but often fails, succeeding more frequently in Hysteria than in the others I have

little belief in the value of this & other similar remedies in Chorea Sancti Viti & Epilepsy I have often seen it used in these, but don't know of its having effected a single cure - the late Prof. Barton extolled it in Epilepsy beyond any other medicine, but I have seen it fail in his hands - In Powder you may give ℈ss or ℈ij up to ℈ss if the stomach bear it - The Infusion (but which will not long keep owing to its fecula) is also given - The Decoction should never be administered - the best form is that of Volatile Oil which has lately been used here - Dose 8 to 20 or 30 drops on sugar, to be suspended in water.

(D). MUSK is an animal secretion contained in a Bursa near to the genital organs of the Moschus Moschiferus & is usually imported here in the sack wherein it is formed, & only in this situation can it be trusted as pure - the hog is usually with it in white thick hairs - But not unfrequently the hog is removed & we have the Musk in grain - here it is always adulterated, the hog & all being usually mixed together the bag is 2 or 3 times as heavy as the contents - Bullocks' Blood is also mixed with it - Musk in grain is of a dark colour - when Black 'tis adulterated, when Brown up so, & it is when pure of a light Brown of an unctuous feel - inflammable & has a fœtid odour - if pure it burns without smell, which is at times caused by Bullocks' Blood &c - Some value Musk highly as an Antispasmodic & it is still often used, but the evidence in its favour are questionable nor is it improbable that the practice is adopted usually through mere routine - it is rarely given in Hysteria, being expensive & its place equally well supplied by Assafœtida - it is however given by some practitioners in the spasmodic actions of the low forms of fever - In Typhoid when there are mesenteric spasms the practice is very common & great confidence is reposed in it especially in Europe - I have no confidence in it having in many cases used

R, but is not one of which can I say it was very good. The substance Musk is generally suspended in water by Gum Arabic it requires 3 parts of Gum Arabic to suspend it. but which group is facilitated by a Syrup. Dose 10 to 20 grs, but whose effects being evanescent, it is to be repeated every 2 or 3 hours. I have never seen this produce any decided medication. Here terminates our account of Antispasmodics.

Lecture 49th

Tonics.

The name of these remedies is derived from the Greek τονος (Tone) & is bestowed on those medicines supposed to invigorate, (or to increase Tone) the term has long been used by medical men in their writings & discussions. but it is requisite for us to define it before we can understand the operations of Tonics. The human system is composed of solids & fluids & the one contains the other = all the movements are performed by solids for which they require & possess the property of feeling stimulants - this is that is called excitability, irritability &c all of which import the faculty of receiving impressions & of responding to them - i.e. life itself is the result of this principle in the solids - no action of the fluids can exist without an action of the solids (& vice versa) the fluids are derived from the solids, & in them there is a constant change - this is called Nutrition or which is exercised a vital Chemistry that is unknown - in all parts from the operations of the same fluids with the actions on the different structures (as the mucous, muscular &c) - according to the intensity of the vital affinity governing life, is the degree of adhesion of the parts - & this degree is the degree of Tone. Tonics are of a compound nature, not only influencing the force of aggregation of the molecules, but imparting a degree of irritability essential to a healthy

action - if (from whatever cause) their action to ascend these limits, the fluids produce irritation & action is increased - proceed still further congestion ensues & if long continued, nutrition is vitiated - in chemical actions we behold various analogous disorganizations, thus in the Mucous membranes there are at times parts resembling cartilage instead of the membrane - but there may also be disorganization destitute of analogy - when irritation extends to a very great degree vital affinity seems to be lost - the part softens - the aggregations disappear, & if the Brain (for instance) be the part affected it becomes semifluid &c - An action to surpass all this, terminates in Gangrene & Death - When action is less than natural (when there are less fluids in the part, the actions are below their normal state the nutrition is deficient & there is wasting away,) we behold Relaxation & Debility - You probably can now understand what signifies Tone, which imparts vigor to vital affinity, causes active nutrition & adds to the normal irritability of the fibres - Tone extends to all parts of the System but irritability varies in degree - the quantity of fluids varies & hence also the irritability in different Tissues - The degree of Tone varies not only in individuals, but in the same individual - this arises from primitive constitution, from the passions, the climate &c - 'tis augmented by stimulants, it diminishes in paralysed parts - Gilpin calls it Robur Insitum Haller very improperly "vis mortua" because for it survives the Phenomena of vitality & ceases only with decomposition Chaussier calls it Tonicity & it is the Insensible of Bichat - It is usually denominated Tone & when speaking of it in excess 'tis called hypertonia &c, all of which are of the same import when diminished we have, laxity, atony & flaccidity - & it is the medicines given to augment & invigorate Tone that we call Tonics - these determine a tension to the muscles & augment density & firmness whence proper operation results from them - they are also termed Corroborants - Astringents are in general similar to them producing Tonicity, but are distinguished by their greater speed of action,

in contracting the fibres which is even at times obvious to the senses
thus in the fauces when an astringent gargle is given - & you can see a
divided vessel close - Tonics are derived from the vegetable & mineral
kingdoms - and all the vegetable Tonics contain Gallic Acid, Tannin,
Extractive matter & in many there are particular Alkalies - as Quinine -
Cinchonine &c - in others as Gentian may be found Resinoid matters & to these
principles are they indebted for their powers - all of the vegetable
kingdom have a bitter astringent taste & little or no aroma. The
action of Tonics on the system is not well marked, that is there is
no immediate sensible distinctness to show the kind of the medication -
To determine their operation we must study first their action on the
healthy organs - secondly, when there is Irritation or excess of action, thirdly
when there is Debility or want of action. Given to a healthy individu=
=al in small quantities they manifest no effects, but long continued
& largely, display a general invigoration of the system - the powers
of life are more active - Digestion is more regular - appetite is more
keen, the pulse is augmented in fulness (not however in frequency)
& there is a general sentiment of health - It is however in disease that
their proper character is developed; when the organs have the fullest
Tone we see them evidently to produce excitement - If the Stomach
be irritated we have Anorexia, heat, fulness in the Epigastrium
& even vomiting - the face is flushed, the pulse irritated, the skin dry,
& in short we behold a complete febrile irritation - Should we still
persist to continue their use, the evidences of action are still stronger
there are frequently Hemorrhagies from the nose & the bowels, & ul=
=timately Intense Fever - When the organs are in an opposite state,
as lax & debilitated & the actions of the system languid & slowly
Tonics exhibit a well marked action & display a striking medi=
=cation = if Digestion be feeble they activate & improve it - the skin which

nar pale becomes rebound, the Pulse is awakened, the Papillæ secretions dry up - now all these Phenomena show that their medi=cation is to create a permanent excitement possessing the characters of stimulants but which are more slowly developed. I have just said that among the first Phenomena of Astringents which are more active than Tonics are seen a contraction & condensation of the fibre, the molecules approach & the Tissues are strengthened. This then is the basis of Tonic irritation, which influences not so much by ~~their~~ irritation as by causing an aggregation of the Molecules. This is a part of vital action but little known, the laws respecting which are buried in a most profound mystery - it is very uncertain when Physiology will develop the vital principles of the Body - if we would learn the Therapeutick principles by which to govern them it is necessary to study their effects on the different tissues & organs - this is requisite with all the different classes & there will be no fixed ideas in regard to the Treatment of Diseases unless we lig=idly analyze the effects of agents on different parts. The elements of all Pathology relate to the nature of organs & their lesions, the power of the medicines & their actions on the parts - there no one can dis regard with justice to himself & safety to his patient - & it is for this cause that I insist on them more than may perhaps be deemed Requisite - with Tonics I will pursue the same course as with other classes - & first of the Alimen=tary Canal - here the action of Tonics is determined by the state of the organs - if this be natural Tone & vigour is increased - ap=petite also & Digestion are improved - more healthy & abundant chyle is generated & all the Nutrition benefitted = if the stom=ach be phlegmatic the Tongue furred & Dyspepsia exist Tonics aggravate the symptoms & imprudently used even excite fatal Inflam=

† A particular friend of mine who had a beautiful set of teeth, has in this way lost the enamel which was conceded at his birth.

tion - if irritation be now augmented other organs will sympathize - thus we see the different actions of Tonics on these parts - In Dyspepsia it is a customary practice to resort to Tonics under a belief that depravation of appetite & digestion depends on debility, but which is far oftener caused Reversely - the stomach has usually been excited by improper diet, by the passions &c & is in a state of sur-excitation it is by no means owing to debility but simply to hyperexcitement of the Mucous coat - hence we almost uniformly have heat, fulness, or sense of weight, a flushed face, & the pulse accelerated just after a meal - The Phenomena of Dyspepsia are various & depend on its degeneration - if there be slight secretions & vitiated, there is much ~~irritation~~ acid in the stomach & this causes a new irritation - hence result Cardialgia & other distressing symptoms which desire relief from an alkali, as for instance from Magnesia - The quantity of acid is at times very great & it has lately been shown to be not a vegetable but Muriatic acid - this is at times so concentrated that the Teeth are corroded by its ejection.+ The treatment of Dyspepsia with Tonics fails more often is injurious, rendering the Disease more persistive, the irritation more permanent & causing a degeneration of the stomach's structure - I have in this way seen the Mucous coat become cartilaginous & almost horny as in the stomach - so in the Alimentary Canal does the action of Tonics vary - Cullen said Tonics were often elapsed with Purgatives in consequence of their attempts to excite Alvine Evacuations - but when this occurs there is almost uniformly irritation of the Canal & which often tends to ulceration - the patient then seems weak, has a skin cool & dry & uniformly we have a Purgative effect to result from the increase of irritation - Occasionally the Alimentary Canal's apportion is attributed to muscular Debility - 'tis said that costiveness often arises from this cause & that Tonics by irritating the Muscular Coat cure - This I have not

often less & consider very rare - Secondly - The Circulation likewise is invigorated by Tonics - when largely or long taken, the Pulse becomes full, but is rarely accelerated except when there is Fever - in case of healthy action alone existing we have only fulness - Tonics influence the Capillaries - these are strongly possessed of Irritability & their irritation is perceived by the Muscular powers - when these are weak & the Skin pale & cold Tonics act favourably, increase the circulation particularly on the Skin - In low Fevers in which Tonics are often given their Stimulating action is displayed by Hemorrhages from the Capillaries - petechial effusions, hemorrhage from the Bowels &c. usually arise from the Stimulation of the Capillaries & not as is generally supposed from a passive state - I consider that Petechiae arise uniformly from Stimulation & do not indicate the propriety of Tonics - Thirdly - Respiration is often benefitted by them: when this is weakened by the Muscular agents in Respiration Tonics are good, but often prove embarrassing when the difficulty originates from other causes - Fourthly - The Absorbent vessels are also stimulated - it has been remarked that patients emaciate under their use - this is owing to increased action of the absorbents - there are partial effusions: the the patient seems plump, it is owing to this cause & does not indicate health: when Tonics are given here they diminish such a state & the Patient's falling off is a healthy Symptom - Fifthly - The Exhalents & Excretions exhibit the effects of Tonics but not in so marked a degree as Stimulants - they often create Diaphoretic & Emmenagogue effects - Sixthly - Sensations are but slightly affected, the action on the Brain being less marked -

The Therapeutick Employment of Tonics is to be governed by the principles deducable from the foregoing observations: where the nature of the impression - & let the Physiological effect produced,

alone govern you – the immediate effects on the organ accom=
=pained with the lesion should direct you in the selection of
Tonics – three things particularly remember in giving Tonics – 1st. Tonics
vary greatly as to their powers & constituent principles & thus
have modified actions. Some cause more irritation than
others – Some only are Corroborants without stimulating – others
possess both these powers – hence in prescribing, select those accor=
=dingly to the irritation of the Stomach – we must often resort to
them here before irritation is diminished, for they are indicated
by sinking in other organs (as the heart &c) – here prescribe the
least irritating – 2nd – The dose is to be regulated accordingly to
the intensity of action desired – if we would limit this to the
Stomach give small doses at distant intervals – but if a strong
impression be desirable the largest doses are to be given at the
short intervals – In the pernicious Intermittents of Tropical climates
give the fullest doses & arrest them as speedily as possible (℥ss to ℥j
every 2 or 3 hours) In these diseases we have rarely more than 5 or 6
hours during which Tonics may be administered & we should make
the best use of the interval – 3rd – vary the modes of giving them – at
times strong doses are wanted to affect the whole system – at times
smaller ones – combine also the different individuals – a mucilage
is often good to defend the Stomach from irritation when it is already
in such a state – Thus in Intermittent the Stomach often rejects Bark which
always produces heat & uneasiness; this is obviated by enveloping the
Bark in Sago water, Chicken water, or Barley water &c & is better retained
by the Stomach – It is not necessary to dwell largely on the practical
details relative to their administration – the principles laid down
will always enable you to judge for yourselves in different diseases.
But I may make some remarks in regard to some important diseases in which

they are usually given - Great differences of opinion exist in rela=
=tion to their propriety in Fevers - In the former practice fevers
were mostly thought to depend on Debility - a vitiated fluids:
& Tonics were uniformly given - In looking back to the practice
in fevers 60 or 80 years since you will find that almost all of them
were treated with Bark, Valerian, & other stimulants & Tonics - but
the propriety of this course has within the last 20 years been
questioned Rush & others were the first to oppose the practice in
this country, since which they have been restricted & are now pretty
much abandoned - much difficulty has existed in regard to the
question in what respects Fevers differ from other diseases -
this is a question now agitating the Medical world & a question
still afloat on the broad seas of Medical Science - different
answers have been given to the question whether Fevers are diseases of the whole
system affecting the vital powers & having no location & it has been considered
in a twofold point of view - first in regard to its having a location in particu=
=lar organs - when these are inflamed it is called Phlegmasia - Fevers
are thought to differ from Phlegmasia in being more general affections -
on this point it would seem that it could not be very difficult to say
that the symptoms of an organ easily indicate when it is affected -
this at first appears easy, but in practice is not so simply
to be settled - For my part I think that if the morbid Phenomena of
fevers be attentively considered, we will find the symptoms to show particu=
=lar organs diseased & others healthy - if so Fevers are not diseases of the
whole system - if we examine the Post mortem appearances, we rarely
find all the Tissues diseased. I don't know that I can say such a case,
there being always some still natural, or at least no evidences to
the contrary existing after Death - if we keep an accurate history of the
case it will be found that organs not previously appearing disturbed

continue unaltered - I think it right to say that these need not affected - we also find the organs which appeared diseased, presently unequivocal morbid appearances post Mortem! Examine the question thus, & I have no doubt that Fevers are local - fevers differ from Phlegmasiæ in their causes being extensive, as alterations of atmosphere &c - In affections of single organs as Pneumonia, Pleuritis &c a single Tissue is affected which may have a sympathetick influence on other organs - e.g. the circulation, but this is not the chief seat & it can be easily controlled - all the disease is here in one organ, tho' others indeed may be partially affected but are easily controlled - in Fevers the poisonous effects are more manifest (the others often arising from Diet &c) & are produced by positive poisons - The Brain is mostly diseased & is rarely entirely free - hence it is disturbed, its action suspended & its influence over & regulation of the system suspended & deranged - hence the actions of life in most of the Tissues are affected (but indirectly) - The Brain however is not uniformly affected in Inflammation of the Stomach it receives the poison more directly, it is always inflamed - some few Tonics are here good when the Brain is most affected & I know of at least one case where the Stomach was found to be healthy post Mortem - In Miasmatick poisons, the Stomach & Alimentary Canal are the usual seats of irritation - there is one other organ affected in Fevers & which performs very important functions - I mean the heart - In many cases I am satisfied there is active inflammation of this organ & which is another difficulty in the way of the performance of the natural actions of the System - I have only of late attended to this, but in many cases, particularly of sudden sinking the heart is most affected, its internal coat being dark of a Port Wine colour & the Tissues softened - this state of things evidently must give birth to formed alb lymph ~~coats~~ -

in proportion to the number & character of the Organs will be the violence of the disease - if only the stomach, duodenum, & smaller intestines be affected you have intermittent or Remittent fever & if the Biliary appendages Bilious F. if the Brain be affected, & Typhoid, you have adynamia (want of power) which is a better term than Typhus) - when this happens there is not debility in the Muscular system which is the standard of strength, but it is owing to the propagation of Inflammation of the Brain - when this state is still more Inflammation of the heart becomes aggravated & we have Malignant Typhus Fever - these forms then of Fever I think we have seen to be local - if these views be correct 'twill not be difficult to decide how far Tonics should enter into the Treatment of these Diseases

Lecture 50th (Particular Tonics.)

We now come to the consideration of one of the most important & indispensable of our medicines - viz - (A) Cinchona (or Peruvian Bark) - Pentandria, Monogynia, Rubiaceæ is as I have stated one of the most important articles of the Materia Medica - for almost every other we can find a substitute, but the place of this can be supplied by nothing else possessed of equal efficacy, a remark which is particularly applicable to the Malignant Intermittent Fevers of the Tropical latitudes, as the S. States, the E. Indies, Italy &c - In the praises of this there is none of that lying reputation so often bestowed by empiricism, enthusiasm or credulity, & it has extorted the most exalted compliments from our most eminent Medical men - Geoffroy calls it a gift from God - Huxham, divine -

R considers its action miraculous & the highly gifted Sydenham has pronounced it to be wonderful in fact when medled with skill & judgement there is no epithet of praise to which it is not entitled, having enabled physicians to accomplish cures the most eminent, more so than those effected by any other weapon in the medical armory - very different names have at various periods been applied this plant & we are thus necessitated to know them all. China one of the earliest signifying Bark was a native appellation, & Chinachina or Bark of Barks another & designates its superiority - it has also been called Kina & Kina-Kina from being confused with the Radix Kina - the French style it Quinquina which tho' a corruption still generally obtains with the physicians of France - it was once generally known as "Jesuits' Bark" owing to the Jesuit society's popessing large quantities in S America & being the first to import it into Europe - this term also is used occasionally - the powder of Cardinal de Lugo is a name derived from an eminent prelate of the Catholick Church, who at Rome distributed a quantity thereof to the poor suffering under intermittent fever with which that city & the whole of Italy are so afflicted - The name "Pulvis Comitissa" it received from the Comitessa del Cinchon who first made known its virtues to Europe & it derived that of Cinchona from the same quarter the last has become the generic name - she was the wife of the Vice Roy of Peru AD 1640 - an individual has thus obtained a more complete title of nobility & species of immortality than was ever bestowed by the breath of a monarch by power or by wealth - Cascarilla & veta are Spanish terms for Bark & when speaking of this species bark can not be confound it with ones of the

same name: the of comparatively recent date, the precise period of the discovery of Cinchona is obscure & like others of the most powerful agents of the Materia Medica its history is enveloped in fable - The earliest traditions inform us that the natives were perfectly conversant with its valuable properties, but that indignant at the wrongs they received, concealed it pertinaciously from their oppressors: but this is questionable & appears false - a Spanish Jesuit so late as the commencement of the 17th century informs us that the native Bark gatherers were perfectly ignorant of its use & supposed its use in Europe to be confined to Dying - Humboldt confirms this & says that tho' Intermittents were extremely frequent in Cataneyra &c, the natives would sooner die than be cured by Bark - they resorted & sought cures by means of green Citrus, strong Coffee, Lemonade &c & it is only at this late date that a few of the Indians begin to assent to its use - we can scarcely hope it will become general among them as they are so ignorant & obstinate - another & which is a fabulous account relates that Tigers are often known to pools & impregnate their waters with the virtues they possess - another asserts that the lions (of which in those particular countries there happen to be none) having Intermittents are cured by drinking of these pools! another that a Spaniard was similarly cured & made his discovery known. The most common is the account that the Countess del Cinchon had long & severely suffered with a Tertian Intermittent which had proved obstinate & rebellious to all remedies - an indian who described the virtues of Bark to the Corregidor of Lima induced the countess to try it & she was speedily cured - these facts which follow are certain - that the Count del Cinchon was Governor from 1629 to 1639 & that de & Lopez de Vega returned

(* This is noticed in the Satter No 121.)

to Europe circa AD 1640 & made Cinchona known - It is the most common & probable report that it was discovered by the Jesuits at Lima who accustomed to examine the native productions of the country by chewing, judged from its bitter taste & other sensible qualities that it like other Bitters would be useful in the endemical fevers of the country = this! consider the most rational & probable account Cinchona very soon (AD 1640) became known to the physicians of Europe & like many other valuable remedies, met with violent opposition - at this time the Galenic doctrines held sway, whose pathology & therapeutick principles were absurd. these asserted that diseases were hot & cold &c - that they were hot & cold in various degrees, that diseases hot in the first degree must be treated with remedies cool in the 4th degree &c - it was impossible for the physicians to reconcile the action of Bark with these doctrines & it was a shortcut for them to abolish the remedy! So violent were the prejudices* that the parcels first imported into Italy could not be sold, & large quantities lay useless in Rome whilst all Italy was suffering & many dying of the ravages of Intermittents - Barba in 1672 was the first write on Cinchona & to combat the objections to its use, but without making much impression - the first introducing it into practice belongs to Sebastianus Badus of Genoa who confuted its opponents & by an extensive experience established its reputation - In France great prejudice existed till the reign of Louis XIV, whose son (the Dauphin) suffering greatly from Intermittent Fever reluctantly consented after the failure of all remedies to take the Cinchona from an English Empiric this was one Talbot (who called himself Talbot & boasted

+M a celebrated Physician & Botanist with the Brit Roy of Peiraeum.

~~Talbot~~ relationship to the celebrated English Knight of that name - the Dauphin speedily recovered & the medicine's reputation was established immediately - Talbot was rewarded with 2000 louis d'ors, created a Knight & lifted with the monopoly of its trade for 30 years by which means he acquired a large fortune -

When Peruvian Bark was first collected no attention was paid to its Botanical characters & it was perfectly unknown what was the true plant to which Europe had been so indebted for upwards of 100 years - L who was sent from France to measure the arc of the equator in the course of his operations found himself in Peru where seen this plant & devoted some of his leisure to its examination. at this time but one species was known - viz the Pale Bark Condemaine made an examination which he read to the Academy of Sciences Paris - he stated that the mountains on which it grew had been almost cleared - that the large trees had been destroyed & the young shoots resorted to & that even then it was scarce - he confined it to grow only on this one mountain, or perhaps in the immediate neighbourhood of the Equator - on a journey to Loxa which was the place of depot for its embarkation for Europe, which is in Grenada, (now the republic of Columbia) he found that in all places on 9000 feet above the sea from this place to Quito & thence to S^t Fe it grew - Sr Stafford related this to the Vice Roy of Peru but who neglected the information & it was by Humboldt discovered among the archives of the kingdom - L^e wrote to S^r S & procured a specimen of the genuine Bark which was submitted to Linnaeus, & hence his description of the Cinchona to which genus this specimen belonged - & this was confirmed with

Cinchona - & a 10 years after he found it in Peru, soon after in Grenada & a few degrees S. of the equator near Lima - these Barks all passed through Lima & hence even now are often called Lima Barks - a very loose phrase & which embraces many different species; after this a Spanish naval officer transd specimens of this to Chili, so that from the South of Peru to 36° N of the Equator the trade with the Bark was carried on while the Spaniards held the Government of America - a monopoly however long existed in Cadiz & when discovered in Grenada the trade was opposed by the merchants composing it, who fal=
=sely on Botanists to state that the species was different & even procured from medical men the opinion that no Bark grew there which could be trusted to - In consequence of this the Spanish Government prohibited the importation of all Barks which did not pass there & a large collection of the Grenada Bark was burnt through the influence of these mercantile chaps, when the Military Hospitals were suffering from its want. Some of the Grenada Bark was smuggled into England & its operation found to equal the very best. - The Spanish merchants owing to its becoming scarce admitted all South of Peru, but till the present day the Grenada Bark is proscribed in Spain, nor is much admitted from the S. of Peru - the original is now nearly extinct. the quantity originally imported amounted to about 4000 quintals & a few years past was only 100! such is its destruction! it is owing to this that the accounts of the different of Bark have so much varied - The Bark gatherers are very ignorant & in collecting distinguish it by its colour & hence indiscriminately map all of the same colour which often contains great variety of species which thus receive the same name derived from their colour=

(Dr J. exhibited to the class nearly if not quite 30 species, & perhaps rather more.)

The number of different species have been differently stated: in fact the whole Botanical history of this interesting subject was decided to one species. Linnaeus describes the officinalis or Pale & the Caribaea: we have many Botanical writers who have devoted themselves to this subject. of these we mention 9 different species. Lambert 11. P 21. Mutis 7. R &c who were appointed by the Spanish Government examined 13. Lea an eminent Spanish Botanist reduces the number to 4 of Mutis. Humboldt & B mention 18 species which they actually investigated & 7 more of other Botanists. since which 6 or 7 more have been described. so that we have certainly about 33 described & designated & besides several varieties of some of these. I attribute the various accounts to the fact that there are no trees varying so much inter se as these, there being no two of the species resembling in their leaves & many differing in consequence of the height of their situation which varies from 6000 to 11000 feet above the Sea. in some the leaves are oval, or heart shaped or Rotundifolia. some have a pubescent surface on a part & are smooth on other parts. the flowers too vary, in some the stamens adhere to the corolla, in others to the calyx as they grow. so different have the a different positions: all this accounts for the discrepancies & confusion existing on this subject. I now detailed the Botanical History I will proceed to enumerate the different species from which the Bark is derived. The Pharmacopeias & Dispensatories mention 3 species as officinal ~~viz~~ - C. Lancifolia or Pale, C. Pubenda C. Oblongifolia, Rubra or Red, Cordifolia or yellow. all these you find in the Pharmacopeias as the Barks of Commerce. these species are officinal the accounts of them were given by Botanists long before the studies of Humboldt &c had induced discoveries. it is not improbable that the Barks of commerce consist only of these. the colour which ones the guide adhered very well as bark at that time.

but from what has been said of the number of species it is obvious that this can no longer be relied as a guide for the arrangement of the varieties. The Barks now in Commerce are furnished certainly by 6 or 7 species of the Cinchona, & a species of the genus Portlandica, & probably an Exostema - These I will briefly enumerate - 1st The C. Condamenia of Humboldt - This is the species from which the first discoverers procured - Hold you that St Stafano's specimen deceived Linnaeus, & that he made the Yellow C or Cordifolia, officinalis, whereas this is truly so - When Mutis discovered the Lancifolia he supposed this to constitute the officinal - the Lancifolia of the former & officinal of the latter are the same - In the first works the Cordifolia & Lancifolia are deemed the same & this is of great importance & still prevails in the Pharmacopeias - Condamine was the first to examine the separate pieces of the collection Barks - Mutis thought it the same as the Lancifolia, but when Humboldt examined it in Grenada, then in Peru & discovered the tree of Condamine, they called it Condamina & said it was the officinal species - the pale Bark originally the Cinchona of Commerce is this & not the Lancifolia of Mutis - I think the plant of Humboldt & B the most to be relied on - The Cinchona is chiefly in Loxa (pronounced Loha, the Spanish x sounding like our h) & generally from 5000 to 11000 feet high & is seldom found any more in Commerce having been exhausted by constant use for more than 300 years -

The second species is an entirely new one of Humboldt & called the C. Scrobiculata which is very like the preceding, is found in the same neighbourhood, & is rather a variety & chiefly differs in regard to its elevation - the Cinchona attains 12 to 18 feet & this 25 to 30 - it forms large forests - the Bark of this which enters into commerce is in the Pharmacopeias - it is no more called the original, but the

Bark of the C. Scrobiculata - 3. The C. Lancifolia of Mutis - is an Island in most parts of Bark & all the Pharmacopeias have it with the Condamine this grows in N Grenada generally from 4 to 5° N. Latitude in the declivity of the Andes - this has become scarce: it is not propagated by Shoots as the others & is highly esteemed - from the estimation in which it has been held it is nearly extinct - 'tis the Rarge of the French - but there are some varieties much used - 4. The C. Oblongifolia of Ruiz; is the lowest of the Barks - 5. Cordifolia of Mutis - This is the yellow Bark of Commerce, properly the yellow Bark of Commerce is not of a Cinchona species - 6. C. Blanca of Mutis is a native of Grenada - it is introduced into commerce but is rarely used - 7. C. Nitifolia of Humboldt - of this much is used & comes from Lima - 8. The Longifolia of Lambert grows in Guiana - this rarely in Commerce - 9 - The common yellow Bark comes from Portlandica & the Caribean B which is an Exostina. -

Lecture 51st

The common nomenclature of Bark in Commerce is derived from its colour - The three species to be found here are denominated Pale, Red & Yellow, but from the quantity of Barks 'tis difficult to form so simple a classification - I told you in the last lecture that the Spanish Commerce was a monopoly in the hospitals of several Mercantile houses in Cadiz: these whenever a new Bark was discovered kept it separate & assigned it a new name & the only way to become acquainted with these names is to follow up the Spanish custom - these names are usually derived from the provinces wherein were found the different species or from the parts where exported - these we may dispense to a certain extent, but it is better to

continue the old plan which is the only one by which they can be preserved distinctly.

a. The 1st species which was sought from Loxa in Quito was that which composed all the Spanish Bark & hence the original pale Bark & all the analogous species are styled Loxa Bark, of which however the difference was great. The real Loxa Bark composes a family consisting of 6 varieties which vary in quality & purity - it was first called Loxa Corona or Crown Bark from its high reputation - it is the Bark of the Loxa Condomina which was the first discovered, & so highly esteemed that the greatest pains were taken to collect it - the King of Spain appointed an apothecary to live in Peru & superintend the collection of it all - the trade was made a Royal Monopoly for the Royal Society of Madrid - this species resembles small quills, varying in diameter from the size of a writing quill to a little larger & about 3 or 4 feet in length - it rarely attains more than half an inch in Diameter & may be designated by its grey colour & rough Bark which is divided by transverse rough fissures, is always rolled & in general doubled - 'tis frequently covered with grey moss - The inside is of a cinnamon colour & the light colour of the inside & roughness of the Bark are two proofs of its being good: good Bark breaks in the pieces with a short snap & without having fibres. this forms a powder rather greyish - Its taste is aromatick & bitter without much astringency & is the species from which Cinchonine is extracted - The 2nd species of the Loxa is called Loxa fina - this usually forms a large quill not so rough outside & is rather Brown than Grey - its inside colour the Cinnamon is less Brilliant -

it is derived from the Cinchona Scobiculata of Humboldt — this rarely exceeds half an inch in diameter & is usually no larger than a common quill = occasionally in Crown Bark may be found a quill very smooth outside & as thin as writing paper — this comes from the younger Branches & is highly esteemed (selling for $4 per ℔) but Crown Bark is in general rough has lip lechins & a darker colour — The 3rd species Loxa Grisea or thick, is at times thick in circumference has the most characteristicks of the preceding, (the same cinnamon colour & the same taste) but is thicker which I take it is owing to its coming from the largest Branches of the Scobiculata or Condamanea — The following varieties of the Loxa are inferior — viz. 4th species — the Loxa Media from the Scobiculata is rather larger — the 5th Loxa Parda or greyish Brown comes in the form of quills, (single or double rolled) & is darker on the inside — The 6th species or Loxa bajo, is commonly of an inferior quality, as are also both the last species but are all still preferable to our Bark — The best Bark has no different colours — & is in short quills — The Corona, fina, Grisea & Media are usually in quills 2 or 3 feet long — the inferior species are shorter — all these species come from the Loxa —

B. The 2nd Family or Guanucho derives its name from the capital of the province — Of this there are 4 different species — viz. — 1st G. Superiora — is highly esteemed & I take it (tho' I am not certain) to be a variety of the C. Lancifolia of Mutis — I never could verify in it any of the Lancifolia, but it is much like it — this attains a considerable size, is rough outside & neither of an orange colour — it often has many lechins, its taste is very bitter but possesses little Astringency — The 2nd species seems the product of another Tree, viz.

the G. Fina & this I take it is the C. Nitida of Pavon: this is of a light ash colour – has lichens on it & resembles double coloured quills – its internal colour is a light cinnamon – at times it is of a Black hue within but which arises from its being torn when wet & the internal colour is a tint of good Bark – this is possessed of little aro= =ma & is inferior to the Loxa – There are 2 more varieties of Guanucho Bark of an inferior quality 2d the G. Mucia has the same characteristicks but is larger, probably because they come from different Branches – 4th G. Jada is very thick, of the same colour & has lichens – the other species attain 2 or 3 feet in length – this is probably from the Trunk, the quills never being perfect – this differs in all the characteristicks (roughness & other qualities) – The powder from the Guanucho bark is very pale & difficult to distinguish from the Loxa when in this state – the Loxa Bark is grey & this very light coloured resembling Ipecac: the L Bark has an aroma, this has none – the L. B. a fine aromatick bitter astringent subacidulous Taste, & this only a Bitter Taste – In common parlance all these might be styled pale Barks which differ only as to their shades. The 2nd Family a Quiamilus has 3 species which not differing much as to their are consequently difficult to distinguish – 1st species – G. Superiora has a large quill tuberous outside but feeling smooth – its epidermis is smooth, it is warty & has on it spots lighter than the Bale of the Bark – inside 'tis of a reddish yellow colour, which becomes more strong when it is wet – its powder is very yellow – 'tis given in our Marsh miasmata & is one of the best preparations – The next species (2nd) or quill G. is like the other tho' sometimes smoother – 'tis particular= =ly found in Stage in Granada – it has the same general characters – The 3rd G. Plancha, (or flat) comes in flat pieces, not in quills, & is probably a

nap from the Trunk - inferior to the Quills - The next family
5. The 4th Family Calisaya a yellow or Royal Yellow Bark, was
discovered about AD 1795 & also constituted a Royal Monopoly -
but forests of such magnitude were soon discovered that the
Monopoly was abandoned & it became very Common - this is
the sort from which Quinine is manufactured it being the only
one which yields it in sufficient quantity to repay the
Apothecary - there are 2 varieties of this - the first C. Superiora, is
in quills large & rough outside & 2 or 3 feet long - it is often covered
with a grey lichen - its epidermis is grey & contains circular
fissures - this differs from most Barks in having a loose
Epidermis & when this has a fissure in it it corresponds to
the Substance beneath - the inside colour is more light,
(& the lighter it is the better) & often when broken, many shining
fibres are visible & indicate its quality - This species is at present
a favourite here - there is no other Cinchona whose Epidermis
is so easily separated - 2nd Species - The Plancha easily ad-
=mits the removal of its Epidermis - it seems to come from the Trunk
of the Tree & tho' inferior to the quill yields an abundant quantity
of Quinine - There are 2 others of this species - 1st The Guiana, from
C Longiflora of Lambert, is in flat quills, its external Epidermis
is of a light colour, has a satiny feel, its bark is thin - forms
a yellow Powder & is a good yellow Bark - 2nd The common
yellow Bark of this Country called the Carthagena, is the product of
a Portlandica, not of a Cinchona, it is flat & never comes in
quills - it has many woody fibres - its powder is yellow, of a bitter
& astringent Taste & has no smell - Till lately none was used
in the United States but this - it is nearly the worst of all the species
& in consequence of its frequent use Cinchona lost its reputation here

& indeed the powder of most of this Bark is little Better than Saw Dust - there is some Quinine in it when very good but mostly there is none, it should be rejected & is unfit to administer to a Patient - Of the Yellow Barks then we have first Guaniley of which there are 3 species, second the Calisaya in quills & flat & also we have the Carthagena & Guiana all of which are yellow Barks & so called - they differ greatly in price the Calisaya in quills sells now at about $2 per ℔ ($1.50 by the quantity) - The Guiana for 50 cents to 150 & the Carthagena for 10 cents - hence Physicians are open to the frauds of Apothecaries, it being impossible to detect them when it is in powder - E. Of the Red Bark there are 2 varieties - 1st the quills & 2nd the flat - the Spaniards call this Colorado Planeha & Guina - the quill of this Bark varies greatly in size being rarely of less than half an inch or an inch in circumference - 'tis often covered with a lichen Epidermis (a species of lichen) inside - when Recent 'tis of a Brick Red, but its colour lessens as it grows old - it has many shining particles when broken & presents a Resinous aspect if cut - The flat Red Bark evidently composes the Trunk, & the quills form the Branches - These two species might be mistaken for the Calisaya (particularly the flat) - It is difficult to draw a line of separation by their appearance, but the Epidermis never peels off so easily as from the Calisaya - Most of the preceding articles may be placed in families, but several Barks exist in single varieties - 1st of late a species has been discovered very analogous to the Crown Bark & fine Loxa but it can be distinguished by one well acquainted with the Tree - this is smooth - when fully

& dark inside, this & all other Barks are bad & contain no Cinchona nor Quinine - this is the Cana Nuova Lisa of the Spaniards (new grey wood) & is abundant in Commerce - another 2nd, comes from the South of Peru & is the Pulca, the very in= =ferior & should be rejected. It is always in short pieces - Brown exter nally & dark within resembling Brown Loxa tho' an which however it is smaller - 3rd There is a Bark occasionally found in this Country in commerce, called the Role, probably the C. Rosea of Pavon but which is very bad - 4th another variety has no particular name, but is usually known by its smooth exterior & I found it to contain on analyzis 10 grs of Cinchona in 4 lb. The discoveries of new Barks are constantly progressing & I have in my hand one from Mr Salazar, the Colombi= =an Minister, which is firm & consistent - it is resinous & very active - I pounded some for experiment which I gave in Intermittents & with the effect of speedily arresting them - according to Mr Salazar there are large forests of this species & they will probably soon enter into Commerce for the Colombian government desires, much interests that they should - I have now shown you the different varieties of Barks in commerce, of these the only varieties which should be employed in medicine are of the Loxa & varieties - viz the Crown Bark, the fine Loxa, the thick or Grisea & the Media - Reject the other two - of the Guaranuha employ the Superiora & the G. Fina rejecting the others - of the Geriniaby both the Superiora & quill are good - of the Calisaya the quill is pref= =erable in medicine & the flat in Commerce - Guiana B. is good for common use, but the Carthagena which is in all the Shops should be rejected - of the Red Bark are both the flat & the quill

I repeat the thus - There is a preference in the administration of these Barks - Loxa Bis characterized with less irritation of the Stomach than the Calisaya - it is to be preferred in cases of convalescence from continued Fevers, or where there still exists irritation of the stomach - the Calisaya which contains much Quinine is more irritating & is preferable in open Intermittents, when the patient suffers from Paroxysms, but is well in the interval - If however the gastric irritation be manifested in the interval, I always have found the Pale Bark preferable - There are certain characters which designate good Bark (generally speaking) such as the internal colour, the size of the quill, the manner in which it is Rolled, the thickness, the consistency, the fracture, the resin, the smell, the Taste & the surface - The internal colour is always a good criterion of Bark's value - when Loxa Bark is black within it is always, (only upon it) injured in drying & sweated out, by which means fermentation takes place - The Region in which Bark grows is very moist & during 8 months of the year the Mountains are drenched with Rain, hence this wetness often injures the Bark & renders it Black within. The inside of the Guanuco should be cinnamon coloured - of the Guiaquilly an orange yellow - some of this is Red & some orange & this colour is deeper in water - when it is of a dark colour its injured - the same is the case with the Calisaya - the bark being big lt. The size of the quill is often another characteristick - of the Loxa & Guanuco (except of the thick which is still inferior) the thinner the quill the better - the manner of rolling is another characteristick. the more compactly formed the better & a double rolled quill is to be preferred to a single - in collecting the bark the natives strip

it by simple incisions - if the Tree be healthy it will roll up, if decayed or old the quills are badly formed. This indication is a general one. The Bark of all the Trees contains 3 portions - viz - the Exterior or Epidermis, The Parenchema & internally the woody fibres - the Parenchema is the active principle & the other portions contain very little the more Parenchema the better the Bark - the consistence indicates its value - when pungent & sharpness the Parenchema is destroyed by having been put up wet, the fracture is imperfect & does not snap but breaks easily & the Bark is partially Rotten - if much woody fibre exist the fibres will project & not have a clean neat & smooth fracture - Density varies in Bark - good Bark is heavy & light Bark is Rotten - The smells of Barks vary - The best Loxa bark has an agreeable odour when powdered. & the Guanuco is almost the only one having no aroma - The tastes likewise a good criterion but varies - the best has a slightly astringent & subacid intense taste - Guanuco B. has no astringency & only a bitterness - the Calisaya & the Red have subacid & bitter tastes - Some of the most inferior Barks have the most astringency of taste & there are persons who ought to be very good judges of cinchona by this - when you want a febrifuge, this quality is bad - We often sell a very inferior Bark which used to be smuggled here before the Revolution, (the Dollars being put into the middle of Lemons) which is highly astringent, sells for 2 cents per ℔ & is good for nothing - The external surface of good Bark is always rough, of Bad, smooth - These characters are however influenced by the situation of the Trees, in forests or separately, in higher or lower soils, in colder or warmer climates &c -

(end of this lecture) -

"An account of the various barks with their Botanical names copied from an invoice".

There are 5 families of Barks, of which the 1st Family is the very pale or Loxa Bark & includes 6 species - viz

1st species -

Vulgar name — Pale Bark

Botanical names — { Cinchona Condaminea of Humbolt & Lancifolia of Mutis - officinalis of Linnaeus -

French names { Quinquina gris, Loxa, fina, Quitusingo &c

Spanish names - { Loxa Corona, Superiora fina, Cascarilla

The native localities of this species are the Mountains of Loxa in Quito, Quitusingo in New Granada & in mountains of the same latitude as those of Loxa -

2nd species -

Common name — Pale Bark

Botanical names — { C. Scrobiculata, a variety of C. Condaminea

French name - { Quinquina gris fina de Lima -

Spanish name — Loxa fina

Native locality - Peru, (forest of Sa Buuromarcas) -

3rd Loxa -

Common name — — — — Pale Bark -

Botanical name { — This is uncertain. It is a variety of the Lima Condaminea, or C. Glandisk fina.

French name Quinquina gris de Lima —

Spanish name — Loxa media -

Native Locality - South of Peru, & New Granada -

4th Loxa -

Common name Pale Bark

Botanical name - C. Lancifolia vera

Spanish name - L Gnesca -
Commercial name — Thick Lord -

5th Species

Common name — Pale Bark
Botanical (uncertain.)
French Quinquina gris de Lima
Spanish - Lord panda, or Grey Brown
Native locality — South of Peru -

6th Species -

Common name Pale Bark.
Botanical uncertain
French - L. gris de Lima -
Spanish commercial name - L. Baja (or inferior)

The 2nd Family is the Guanucho & has 4 species - viz
1st Species - (G. superior).

Common name Yellow Bark -
Botanical - C. Cordifolia (supposed) -

2nd Species (G. Fina)

Common name Pale Bark
Botanical uncertain
French do
Spanish - G. Jonan - (coarse or large) -

3rd Species - (large G.

Common name — Yellow Bark
Botanical uncertain
French do
Spanish Guanucho gorda (coarse or large)
Locality supposed to be the S. of Peru -

4th Species -

Common name would be Pata
Botanical & French — uncertain -
Spanish G. Media
N. Locality supposed S. of Peru

The 3rd family (Guiamley has 3 species viz

1st Species - G superiora Cañora

Common name Yellow Bark -
Botanical C. Cordifolia
French Quinquina Jaune
Spanish G. superiora Cañon

2nd Species - G canon, or Lima amarilla

Common name Yellow Bark
Botanical C. superiora Cordifolia
French Q. jaune -
Spanish - G. cañon or Lima amarilla -
Locality near Granada -

3rd Species - G. Planda

Common name Yellow Bark
Botanical - Cinchona Cordifolia (supposed)
French Granates
Spanish G. Planda (or flat)

The 4th Family Calisaya is divided into 2 species - viz

1st Species. C. superiora or Giulls -

Common name - ——— Yellow Bark
Botanical do - a variety of C. Lancifolia of Mutis - angustifolia of Reis -
French do Q-jaune Royal -
Spanish - C superiora or Cañon or Lima -
Locality - Peru & New Granada

2nd Species. (C. Plancha or flat

Common, Botanical & French names — the same as the preceding

Spanish name — C Plancha

Locality — New Granada

The 5th Family is the Red & has 2 species — viz

1st Species oblongifolia

Common name — Red Bark

Botanical — C. oblongifolia

Spanish Colorada Cañon

2nd Species

Spanish name — Colorada Plancha

There are several others as the Cana nuera lita — the Puna (a name of a plant in Peru) probably the C. Glandifera — French name Quinquina pisca de Lima — the Rosea &c

Lecture 52nd

I have in the two last lectures, spoken of the varieties, & of the nomenclature of Barks - their chemical composition had been but imperfectly analyzed until of late the French chemists devoted their attention to the subject. all early examinations produced indefinite results: they knew indeed of its having certain alkaline extracts & of its watery extracts &c, but were not so well acquainted as they ought to have been on a subject whose medical utility was so highly estimated - now however its components are positively known & we find it to consist of different active principles which are alkaline &c - some species contain particular ingredients & in others all are united - these are 1st Cinchonine & 2nd Quinine Cinchonine exists in the Pale Loxa Bark (the C. Lepenora & Corona, the Scribiculata, the Nina, & Condaminea) Quinine exists in C. Calisaya, - & in the Red Bark they are both to be found - We have other principles important in medicine & which I believe constitute part of its action - There is a principle which Monsieur Pelletier who early saw the first indications hints, tho he did not discover it, it is the Cinchona Bitter & Cinchona Red (which imparts colouring matter to the Cinchona) The Cinchona Bitter is a species of Resin or rather often called a Resin but which appellation is improper since it is soluble - it has a particular species of Extract not yet well defined to which principle it owes its Bitterness. Cinchona Red which forms the colour has a great affinity for this, but may be separated by Magnesia & Lime - these two exist in the (improperly so called) extract of Quinine, with which Quinine has little or nothing to do. This is

a name bestowed on it by a manufacturing Chemist of this city but its correct name is the Cinchona Bitter of Brunpas & as this is an appellation which it has long had I consider it to be more appropriate - what is called the Essential Salt of Bark is nearly the same - Bark contains besides, Tannin in some species, a peculiar acid called Kinic acid & in combination with Quinine & Cinchonia forming the Kiniate of Cinchona which does not exist separately - there are also Lime & vegetable remains - The four first mentioned principles are all important in medicine - previously to the discovery of Quinine & Cinchonine, the Comte de Laguare, by agitating cold infusions & by filtering & evaporating, formed an Extract similar to a Salt in scales & being no chemist he termed it the Essential Salts of Bark - this is very deliquescent & speedily loses its crystalline form - Before the discoveries of Quinine & Cinchonia this salt was a favourite in Europe & this Country & it is indeed nearly as useful - this is the principle of the Cinchonin Bitter & Cinchonin Red & now experience has learned that we lose much when we reject them - The dose formerly given was 1 to 2 grs & up to 12 or 15 in Intermittent Fevers - we now have the Bitter & Red under the names of Extracts - In making Cinchonine & Quinine these were found separately & Chemists knew not what to do with them - I believe I was one of the first to employ them & from experience have steadily found the Quinine preferable - with 1 or 2 grains doses, I have repeatedly cured Intermittents - in the Alms House during the existence of the epidemic Intermittent half the patients were treated with this & with equal efficacy - I mention these things because they have been overlooked in Europe & here, tho they deserve as much attention & perhaps are as

action as the alkaline principles. The medical use of Lichens merits attention. It has generally been supposed to cure Intermittents by a specific property. In our investigations of the mode of action of Tonics & our examination of their Physiological effects on the system, I think we have seen the action of Tonics not to be specific & general, but to arise from an excitement of particular tissues. The difference of excitement in Tonics & common excitants consists in their permanent & general action. Much also of the benefit derived from Tonics, results from their influence on Digestion. In curing Intermittents Bark does not act specifically, but excests thereby its permanent excitation. I have thrown out to you already a general outline of the Pathology of Fevers. Intermittents differ from others in the mobility of Gastric Irritation. It has been observed however not only in Intermittents that this mobility exists, i.e. that the irritation leaves but returns. This property has been called Periodicity & is common to many diseases such as the Neuroses &c. Thus in Epilepsy the hour of an attack's return or the day of the week or month are sufficiently known. Almost since any attention has been devoted to this subject it has been remarked that but few irritations do not possess this property. & hence 'tis not uncommon that it should occur in fevers. The only difference between ordinary & Intermittent fevers, is that in the latter the irritation is diminished at the end of each paroxysm. The difficulty consists in its being of a periodical nature & I believe we cannot say why the intermitting attacks should be constantly renewed. Many attempts to account for this have failed. The latest & perhaps the best is P's doctrine, who attributes it to the alternate periods of the action of the irritation. But this tho as good as any accounts at present existing is far from satisfactory. With this view of the Pathology of

Intermittents in precisely that Cinchona operates by slowly developing action by means of establishing a permanent irritation & that when the diseased irritation disappears, it tends to prevent its recurrence - most diseases which irritate we find located in the stomach - With such views we can discern the operations of such remedies - nothing is more common than that they should all fail owing to the irritation's never having been completely dissipated during the Intermission - It is only when the stomach by metastasis throws off its irritation on the skin & other excretory organs, the existing irritation that Bark to cure - The Intermittent type is not however peculiar to the stomach, being frequently displayed in Hectic fever - Hectic fever is an Intermittent produced by the Lungs having been so here==ditary difference but its situation & also irritating other organs the liver spleen &c, but especially arising after suppuration - We now understand the action of Tonics on Intermittents from what has been the experience in Epidemics &c which are so often injured by Tonics' maintaining the cause of the disease, viz - visceral irrita==tion - whenever there is irritation in the Intestinal, indicated by a quick pulse, a foul Tongue, a weakness & indisposition to leave the Bed, the disease is often produced by the Tonics - the Gastric irritation here is only depressed, not quite abandoned: in these cases Tonics frequently aggravate the Disease, or cause Dropsical effusions &c & irritate the Liver, the Spleen & other organs - It is owing to the same cause that visceral irritations so often, so obstinate - Always then examine the State of the Stomach - restore this to a State of Integrity & you cure your patient not only certainly but safely - In the winter subs==equent to the ravages of an Intermittent, the Alms House has

always been filled with Fevers rebellious to all Tonic treatment - in all these the practice has been the most difficult & thorny the type however of the Fever being of no Consequence - you should always consider the periodicity as accidental & suspect that some organ was affected - I believe & I speak from experience that two thirds of these winter Intermittents have ~~[illegible]~~ always died from disorganization or Dropsy under the Tonic treatment, the use of Emetics salivation &c - salivation does succeed at times 'tis true - but all these in the principle of the Inflammation of some organ - it is difficult however to detect the organ & to this you should direct all your attention this is the first link in the chain of the disease, & the Paroxysm demands not your attention - Cinchona & other Tonics after this irritation is subdued & the organ is quite free from disease during the Intermission are good - but till this is the case they often, (rely upon it) disappoint & deceive - an apparent amendment I admit is not uncommon - the paroxysm disappearing commonly, but the patient is far from well & is still in a critical situation - Cinchona we thus see tho' a good febrifuge, must not be considered a specific or given unvariably - The same of Peruvian Bark extends likewise to Continued Fevers, the pathology of which it is unnecessary for me further to discuss, if my foregoing remarks be at all correct, & the Physiological operation of Cinchona has been truly demonstrated, if the examination of the symptoms be accurate, it is quite apparent that there exists an incompatibility - There are very few cases here where Cinchona can be given with any thing like propriety - Patients it is true often recover under this practice

The Brunonians pretty boast that Cinchona in every shape & stimulants generally work out cures. - Of this there is no doubt, yet is it no evidence of the propriety of the practice. There are escapes under all Treatments!! The system beyond all dispute is endowed with conservative powers, as is clearly proved by Hippocrates, & to this, more than to the Treatment may such Recoveries be ascribed. It might perhaps here be said that Experience is the best guide - but this is as fallacious a one as any ever adopted, nor do I hesitate to say, that tho' on the first blush it may promise well, it will eventually prove an ignis fatuus - Study the histories of medical experience, & you will find that opinions & views the most opposite & heterodox have again & again been sanctioned by 'the experience of the day' - let us instance Small Pox. Three or four centuries ago it was clearly proved, that Red flannel, hot fires, close rooms & sweating medicines were its remedies, & tho the destruction consequent to such opinions was very great there was no suspicion that it was a wrong course. When first opposed by Sydenham, a great outcry was raised, he was persecuted as an innovator & all experience was opposed to it, yet now experience justifies Sydenham's course & proves the opposite a wrong. It is only the opinion resulting from differences of experience which is to be the standard: & he who servilely follows one plan can never have a just Experience. Cinchona is used in two different shapes. Simply as a Tonic, or as an febrifuge - as a Tonic tis applicable to all diseases where other Tonics prove salutary as a Tonic the dose is 15 to 20 grs. - as an Antipyretic ℥ij or more here the object is to produce a strong & speedy impression -

The period for administering Bark, has been variously stated, I believe the best & uniform, is to commence at a remote period from the expected paroxysm & increase its quantity on the approach of the Paroxysm; some prefer to exhibit it just before the paroxysm is anticipated & this course also succeeds - but I prefer giving it as the paroxysm disappears, & increasing it, till the rept supervenes. Cinchona is given differently - In substance the powder is given & should be very fine, since when coarse it is uncertain or difficult to take - it should be quite impalpable - one mode of testing its goodness & fineness is by resorting to an electric Phenomenon - Rub sealing wax on your coat & pass it over the powder - if there be many woody fibres they will cling to the wax & appear like hairs - if it be impalpable & contain no woody fibre the Bark is practile & shews no appearance of the hairs - Bark in substance is transmitted through different vehicles - it is good to give it in Porter - or wine & water, & excellent in Coffee - when the powder is impalpable, give very large doses - ℥ss may be given without uneasiness & is equal to about ℥j of the coarse - In malignant Intermittents give the very best Barks, in doses of even ℥j every half hour, or hour - here the congestion or the organs threatens apoplexy from the determination to the head, apoplexy of the Lungs, fatal Hemorrhagy from the Lungs &c - In such a case which is rarely seen tho common in equinoctial climates, give the largest doses of fine Bark commencing even before the Paroxysm is quite + especially when a second paroxysm comes on soon after the first (with an intermission of an hour or two perhaps - here we have only an hour or two of in=

tenal & unless we make a good use of this the only chance of saving is lost. Bark is given also in Infusion or Decoction - for the Infusion, pour 1 pint Boiling water on ℥ss - for ~~Infusion~~ decoction boil the same proportions. & if you intend to filter do so whilst it is hot as a deposit will remain. this also given in Extract - here however the most Barks are usually employed. but in Peru extracts are made from fresh Barks - & of these there are various - the best is made from the pale Bark, by infusing it & then evaporating in the heat of the Sun - Don Ortiz former Colombian Minister here, showed me the finest specimen of the Bark out of which this is made, that I ever saw - it cut perfectly fresh, its colour was green & its odour aromatick - the Peruvian however most now commonly consists of inferior Barks, but even this is still powerful & possesses the strong taste & odour of the Bark - Dose ℥ss to j. This is best given in water acidulated with Sulphuric acid here all the acids are contained & this is common in Europe where indeed many owing to the expense of Bark obtain Quinine from this Extract - there are also the Extract of Quinine & the Salts of Bark, both good & more cheap, & I hardly think at all inferior - there are 2 Tinctures the Simple & Compound - The simple is inferior & contains 1 part of Bark in 4 of Alcohol - Dose ℥j to 4 - The compd is preferable & contains Cinchona Serpentaria & Orange Peel - it may be coloured with Anchusa - this renders it agreable & active & is very good with Bark in Substance for Diseases of Drunkards whom you must stimulate - here ℥j Bark, to 4 or 5 ℥ Tincture of B is here very good - Bark is often united with Serpentaria &c -

℥j Bark, ℥ij Serpentaria & ℥ss ij Carbonate of Potash, acts speedily & with improved effect. Its combination with the Sal Ammoniacum constitutes a favourite European Remedy. ℞ - ℥j Bark, 20 or 30 grs powdered Sal-Amm - add an aromatick, as Powdered Orange Peel - whenever you have inferior Bark it may be improved by the addition of aromatics - e.g. Ginger Cloves Cinnamon &c - There is one preparation of Bark which was very much used before the discovery of Cinchona's Alkaline principle - the year before this invention it was used in the Alms House, Hospital &c with the most energetic effects - ℞ Cinchona (powdered) ℥ij, Opii Confectio ℥ss, Port Wine Spirit, (& in private practice I add the juice of 2 lemons - In the Alms House Tartaric acid.) Dose a half wine glass full every 2 hours - this was the best we used for Intermittents & admirably suits the cases of Drunkards. The alkaline principles of Bark are now the most used, viz - Cinchonine & Quinine - The Cinchonine I said was prepared from the Pale or Loxa Barks - this forms a white crystallizing salt - it has a bitter Taste which is slowly developed - It is so insoluble as to require 2500 of Boiling & still more of Boiling water, hence when pure it has very little effect - I have never used it pure, but with an acid (usually the Sulphuric) - Cinchonine is procured by treating the extract of the Guancho or Crown Bark with warm water acidulated - take 8 H water, ℥j Hydrochloric acid - if in powder digest 1 H of Bark at of water, ℥j Muriatic acid, filter the solution - here we have Muriate of Cinchonine by decomposing it with Muriate of Magnesia & treating it with Alcohol you will have Cinchonine - by using a weak solution of acid & then a strong solution of Boiling water you remove the colour - Cinchonine is insoluble in Æther - Quinine is the principle of yellow Bark -

for the Sulphate of Quinine ℞ lb best Calisaya Bark, powder & treat it with 8 or 10 lb water acidulated with ℥ij Sulphuric Acid - Decant this infusion & treat it with Quicklime whose Carbonic Acid is expelled & you have a precipitate which is colored. Decant the water at once & you will have left an excess of Lime & Sulphate of Quinine, colored water & Cinchona Bitter: Dry this & treat it with alcohol which takes up the Quinine - Distil the Alcohol & the rest treat with acidulated Water - crystallize this & you have obtained the Sulphate of Quinine - this you usually find in the shops in a whitish powder, but it should be in white crystals like Asbestos - Quinine & Cinchonine are at times adulterated & to detect this take crystallized Sulphate of Lime treat this with Alcohol, & no residue remaining it is pure - Dose of the Cinchonine & Quinine 1, 2 or 3 grs & up to 12 in Pills & in Solution - when the Solution is made the Sulphate of Quinine generally becomes a Subsulphate, hence you may give 12 or 13 grs of the Sulphate of Quinine of the Shops in water then is a remainder to which add 2 or 3 drops Sulphuric acid - ℞ - Sulph. Quin. 18 grs - Sulph. Acid - 6 drops, Aquæ ℥ij (& to make it agreeable ℥ij Syrup - Dose a Tea spoonful - Syrup of Quinine - dissolve 15 or 16 grs in ℥j Syrup - this is good for Children

Lecture 53rd

Having concluded the history of Cinchona, I proceed to take a view of some of the most important Vegetable Tonics -

B. Angustura (Cortex -) This plant derives its name from that of a

Tonic in South or rather Meridional America - When introduced the medicine was supposed to be of African origin, but Humboldt & Bonplant, discovered that it was a native of Columbia, abounding along the shores of the River Orinoco - Humboldt at first supposed it to belong to the genus Cassparia & Willdenot considering it a new genus denominated it from Bonplant, hence Bonplantia Trifoliata - The bark is the part employed in Medicine: it comes to us in flat pieces, occasionally partly rolled - Its external colour is a dirty yellow generally rough, but often rather smooth - 'tis a solid Bark, & breaks with a smooth clean resinous fracture - 'tis brown in the interior, possesses little or no odour & has a peculiarly bitter & strong taste - I stated in a former lecture that a Bark called Angustura Bark in pills was denominated false Angustura but that experience proved it to be a poison, & that it caused many deaths in France & that it was supposed to be a species of Strichnos whose active principle has a vegetable alkali denominated Brucine - at that time its chemical properties were not well known. Thomson attributed to it a bitter principle analogous to Cinchonine but resinous, however as Cinchonine is a perfect vegetable alkali I deem this very dubious - it contains some Carbonate of Ammonia & a little essential oil: its principles are soluble in water & alcohol - Like Cinchona's, the physiological effects of this medicine indicate that it possesses a strong Tonic character - when first introduced into medicine it was deemed almost equal to Cinchona as a febrifuge, but has not sustained this reputation - It is strongly recommended by Mr & Williams in dysentery & in low fevers, but like most remedies, when new it received very extravagant eulogies, experience having by no means confirmed the opinions of these gentlemen -

Alibertinid in l'Hopital St Louis, in Intermittents but found it to be far inferior to Cinchona - I believe that at a time when Cinchona was very scarce, Angustura became a favourite with some of the Southern Medical men & particularly in the vicinage of Norfolk - it is certainly better than our common commercial Bark which is now nearly extinct & scarcely 100 lb of it having been consumed within the last 30 years & tho' not equal to Cinchona, Angustura may be employed in case of its or any other Tonic becoming scarce - I have lately received from S. America, a package of what is called Angustura Bark, but which differs greatly from it - it has a large quill quite smooth & which corresponds with ferruginous Angustura - (so called from its when blown to the rust of iron which it also assimilates in throwing down a blue precipitate with Prussiate of Potash - this I have tried however & tis not poisonous - it has a strong bitter taste & is probably a Tonic - whether it will ever enter into Commerce is how=ever questionable

C. Cortex Cascarilla - The Cascarilla of the shops is the Bark of the Croton Cascarilla (or Eleutherium) it is a tree of the W. Indies growing in Jamaica Eleutherium (an island in its vicinity) &c - it is also said to grow in Florida, & we are told by the Books that it is a native of Virginia, all which however I am ins=clined to doubt - Cascarilla was discovered in the 17th Century by Salvat, a learned Spanish Physician, was first used as a Perfume (in scenting cigars &c but afterwards its medica=tive reputation became very exalted - Its Bark is used - this seldom comes in perfect quills, but generally in small frag=ments - that of the present day is not like what we formerly got - then it was of a more perfect quill form & often covered with lichens

but this is no longer the case: the woody fibres are whitish & are inert. it comes in fragments whose edges are turned up - externally tis of a brownish colour or often grey, & has lichens - inside tis of a Rust red colour - Cascarilla has a faint aromatick odour which when burnt resembles Musk so strongly as to be often mista= =ken for it, & hence it has been & still is much used in cigars in Europe - When its medical properties were made known they were eagerly defended by the Stahlians who resisted the use of Cinchona Bark most pertinaciously & also opposed many of the Tonic Barks with these Cascarilla became a great favourite. It was warmly lauded by Sunter &c in Germany, but was unable to maintain long its reputation as a febrifuge which was the result of a fac= =tious opposition - Cascarilla is a mild Tonic containing a slight aroma & some exciting properties but to be dispensed with when Cinchona can be procured - it may be very properly mixed with inferior Bark - often in cases of convalescence from Intermittents writers recommend its decoction, but this practice I have found unsuccessful & consider this more imitating than some other Tonics. 'Tis given in Powder, Infusion & Tincture - Dose of Powder 15gr to ʒj - Cas a Stomachic 15 gr, as a febrifuge ʒj a ʒij - The infusion is at times given in convalescence. (ʒj to a half pint Boiling water -

D. Gentian. Radix Gentiana, is a Tonic differing from the preceding: it has a simple Tonic operation unconnected with any exciting power & both Gentian & Columbo are on this account often very good - This is the Root of the Gentiana Amara, or G Lutea - all the articles of this family pos= =sess more or less Tonic properties - the Root is generally cylindrical, Brown externally, spongy & yellow within - the external is rugous & often has annular rings which give it this appearance - it varies from several inches, to 2 or 3 inches in length, possesses very little odour, a bitter taste (very purely Bitter) & no astring= =ency or acrimony - it is indebted for its activity to a peculiar bitter prin=

ciple called Gentiana, but it is undecided whether this be an alkali or Resin - it somewhat resembles a vegetable alkali, but does not restore vegetable Blues which have been reddened by acids - This is found crystalline, transparent, yellow, inodorous, & is a powerful Bitter - alkalies deepen its colour & render it more soluble in water - acids deepen its colour & render it more intense - To obtain pure its principle, heat the powdered Root with water & then with alcohol - evaporate, & boil the extract thus procured with Magnesia - this causes decomposition & separates it from the other principles & if you pour it off now & treat it with Magnesia you will have it pure - It is usually given in Tincture 5 grs in ℥j alcohol - Dose 15 to 20 grs gradually increased, is a neat prescription & a good bitter - It is also given in powder Infusion & Extract - Dose of its powder 30 grs to ℥ij - of the Extract (made by forming a watery decoction & evaporating to dryness, 6 to 10 or 12 grains, - this Extract generally contains all its principles if the heat have not been too great - The infusion is a very common formula - ℞. ℥ij of the Root to ℔ pint of water - this is often made with an alkali, & the Bi Carbonate of Soda or Potash given in stomachic affections & proves very excellent agreeing in cases of Dyspepsia better than other Tonics - Gentian is the basis of all the empirical stomachic medicines, particularly of stomachic Bitters & Tinctures most of which are compound. 'Tis usually taken with aromatics or other Tonics, as Cinchona, Canella. Cascarilla - the common is better & contains mostly Cinchona, Canella & Gentian Gentian is a pure & simple Bitter devoid of exciting properties which renders it useful in cases of atony of the Stomach, or Alimentary Canal - whenever excitement would prove prejudicial this will be found of service - it is objected to most Tonics that they produce astringency excitement - here however there is no astringency, little or no

excitement, properties which render this useful when other Tonics would injure - as a febrifuge tis not very active, the infu-sion when it gives & particularly in Germany France &c tis finally used on & is perhaps more powerful when used fresh -

I. Columbo - has long considered the plant of the Radix Columbo (properly, Calumba) & derives its name from the capital of Ceylon whence thus first exported - tis a product chiefly of the Eastern Coast of Africa of Mozambique & Zanguebar (& not the Zanguebar of the Dispensatories - the plant producing it, is differently stated - tis said to be a Menispermum (Palmatum) & was determined to be so by a specimen from the Isle of Mauri-Decandolle the famous French chemist calls it a Cocculus (Pal-matus) its root is fusiform & has many ramifications - hence we find it in flat circular pieces - it consists of 3 parts - first - a cortex very thick & rough & covered with an epidermis, second a Parenchyma which is more yellow, & thirdly of a substance which usually forms concentric zones - The Bark may ordinarily be stripped with ease from the other parts - good Columbo should be light, yellow within, Brown on the outside & free from worm holes (tis speedily attacked by worms & they consume its active principle) this was first introduced into medicine as a Stomachic by Mr Percival of Manchester in Nervous vomiting of pregnant women - like Gentian its action is not characterized by astringency or excite-ment - Chemical investigations have failed of accuracy - it has 33 per cent fecula - 9 or 10 of Gum - an oleoresinous principle & very little volatile oil - these indicate no great activity or exciting powers - hence tis good in Indigestion when other Tonics are inadmissible - when there exists irritation of the Stomach most Tonics augment it, but we may safely consider this an exception & except to it - as a febrifuge

& Mately had a patient (a young woman in her first pregnancy) who for 4 months vomited much by day & men at night & was relieved by nothing but powdered Columbo.

Columbo cannot lay claim to a very exalted reputation being chiefly serviceable as a stomachic. I believe experience approves its use in the nausea & severe vomiting of pregnancy. The character according to my recollection was given to it by the late Professor Barton who had great confidence in Columbo, in cases of vomiting induced by sympathetick irritation of the Uterus. The Dose in powder is 18 to 20 grs (stomachic). The Infusion contains ℥ss powdered C in 1 pint water. The Decoction is not a proper form, for it contains a large quantity of fecula & which soon ferments & forms a gelatinous mass similar to starch. The Tincture consists of ℥ss a ℥j in 1 pint Alcohol. Dose ℥ss a ℥ij.

F. Quassia is obtained from the Tree called Quassia Excelsa & derives its name from that of a negro Quass who first manifested its Tonic properties & employed it in the diseases of Guienne. It is a native of Bahama & other Islands of the West Indies. The wood & roots are used in Medicine. The root varies from the size of the finger to that of the arm, has a thin grey Bark & the wood is of a light or whitish yellow colour generally deeper than the colour of the Bark. It is hard to handle in consequence of its Tenacity. Has no odour & a purely bitter unaromatick taste. It has a principle of a dark black colour which is soluble in water & alcohol & is denominated Quassin. Dose of this 1 to 2 grs. & it is prepared by boiling the Rasped wood in water & evaporating it. This is the best preparation. Quassia is a very pure Bitter characterized by the general properties of Gentian & Columbo. There is thus you see a division of Tonics consisting purely of Simple Bitters & which has no general action except what arises secondarily from invigoration of Digestion. It is valuable in such cases as have been said to require such medication but cannot be relied on as a febrifuge. Quassia is almost uniformly administered in Infusion. ℥ij ass in a pint of water.

Dose a wineglassful four or five times per day & it does not excite
C. Hop. This is the plant with which you are all well ac=
=quainted as the product of the Humulus Lupulus & which
is sometimes of importance & constitutes the basis of Beer.
Its fruits and summits are used. there are membranous, of the
shape of ovoid cones with scales at the base of which are
small grains. this is covered with hairs to which a powder
is attached & to this powder 'tis said to owe its ac=
=tivity. the grains are called Lupuli. Hop is not a
simple Bitter but is somewhat narcotic acting not only
on the stomach but also on the Brain. it has hence been
used as a soporific but here 'tis very feeble. & indeed I have
employed it without ever seeing any thing like a Hypnotic
Result. But the cones of the Hop give a seer & pint of the
powder 5 to 10 a 20 grs & you may give more sans dif=
=ficulty.

There are some other vegetable Tonics
on which it is not requisite to visit, since we have
mentioned the more important. there are many derived
from the Mineral Kingdom which we have yet to
consider

Lecture 57th (Mineral Tonics)

(A) Ferrum. The first & most important Mineral Tonic
is Iron which is widely diffused throughout Nature & is a large
constituent of animal & vegetable bodies. The Ferruginous prepa=
=rations are the most innocent medicines when containing
only pure Iron which has no action on the system & whose

preparations are not very irritating or poisonous - most of the ferruginous preparations exhibit no analogy of action to other metals - Iron easily becomes oxyded by Heat or the air. it unites with Oxygen in 2 proportions forming a protoxide & peroxide terms formerly employed in the Pharmaco=peias, but now nearly laid aside - Iron possesses the gene=ral effects of Tonics hitherto described & operates chiefly by giving Tone to the Stomach & Alimentary Canal, improves digestion, betters the chyle & hence benefits all the nutritive functions, adds energy & tone to the tissues & to all the functions of life - the Blood's colour is exalted by Iron - hence it has been said that the colour of the Blood is owing to Iron, but which is not correct, it being ascribable to a peculiar principle It is known generally increased, the complexion improves & from being pale & edematous assumes the glow of Health - the Blood drawn is more Brilliant & contains more fibrine - The Bowels after Iron has been exhibited are in general con=tive owing to the greater energy of Digestion which is occa=sioned by the sluggishness consequent to the increased quantity of Matter to be made into chyle - the stools are generally Black, probably in consequence of the Black Oxide formed in the Alimentary Canal - For medicinal purposes soft & Malleable Iron is generally better - tis used either in its Natural State or its various Preparations - In its metallic State tis given as filings - Limatura a term of the Pharmacopeias - these filings are in this Country usually obtained from the Gunsmiths, but often other Metals, as brass, lead, &c are mixed with it & from this it should be purified by a load stone Iron filings should in general be powdered, usually being

too coarse, irritating the stomach & proving hard to be retained. Iron filings are not so commonly given as most of the ferruginous medicines - they operate only when changed into an oxide & hence a certain degree of acid is requisite to render them medicinal - after Iron filings have been taken fetid eructations are common & attributable to the action of the acid in the stomach on the Iron, & these eructations consist generally of Hydrogen gas. Iron filings are administered as Tonics in all cases where these medicines are given - in case of debility of the stomach, of Dyspepsia, of Chlorosis where there is want of Blood, in Passive Hemorrhages, & also as Anthelmintics as which they often discharge the animals by their mechanical action - dose of Iron filings 5ss to ʒss alone, or what is usual with aromatics, as Cinnamon, Ginger &c - The Squama Oxidi ferri, are the scales found around the anvil of the Blacksmith & are peeled off the heated Iron & are rather better than the preceding - they are also attracted by the magnet & should be thus tested - The Per (or Red) Oxide of Iron is prepared by exposing the Sulphate of Iron to a high heat - the Sulphuric acid is driven off & the Iron oxyded - this formerly had a reputation - The "Murias Ammoniae et ferri oxydus," the Hydrochlorate of Iron & Ammonia, the Ferrum Ammoniacale &c consists of equal parts of the Muriate of Ammonia & Peroxide of Iron - it is to be sublimed by a sudden heat which reduces it to a transparent yellow crystalline grains of a styptic & astringent taste, & odour resembling Saffron - 'tis soluble in Alcohol & in 2 parts of water - 'tis a tonic & slightly aperient - 'tis highly praised as an Emmenagogue & Anthel-

mintic, & in hospitals operations but does not maintain the former great reputation assigned it when the actions of medicines were not studied - Dose in substance 3ss to ℥ij - it is often given in Tincture which contains 1 part of Ammoniacal & 4 of Alcohol - Dose 12 a 15 gtt - a ʒj. The Sub Carbonas Ferri, (Rubigo Ferri) is the most ordinary preparation of Iron there are two modes of preparing it - 1st. Expose Iron filings to moisture & heat, they will absorb oxygen from the air decompose the water & an oxide is formed by the oxygen of the water & the attracted Carbonic acid of the air - it forms a chocolate coloured Rust which is the Sub Carbonas - 2nd Decompose a solution of Sulphate of Iron by a solution of Sub Carbonas Soda - this is a better mode - when prepared from Iron filings all the Iron in the Sub=carbonate is not oxidized, & hence it is gritty, not perfectly impalpable, & does not agree so well nor can it be taken so largely - The Sub Carbonas is usually prepared in small molecules by triturating the Subcarbonate with water till of a demi fluid consistency & then drying - this is preferred by Physicians in all cases indicating the ferruginous preparations - This is highly extolled by Hutchinson as an Antiperiodical or as opposing Periodical Diseases, particularly the Tic Douloureux - there are many cases of success from the Carbonate on record - tis also recommended in in the sequelle of Intermittents, in chronic engorgements of the abdominal viscera & particularly where the Intermittent is not wholly subdued in the intervals - I mentioned it in hemalgia with but partial success for the disease returned - many recent cases of its success are stated; but I believe all we can say is that it sometimes succeeds.

Dose as a Tonic from 8 or 10 grs to 12 or 15. In Neuralgia give the largest admissible doses - ℥ss to ℥ij several times per day - it is better for the Stomach to combine it with Ginger, Cinnamon &c - & a very pleasant mode is to add a few grains Carbonate of Iron with Mineral Water - a portion of the Subcarbonate of Iron is taken up & this is a very good plan, in a long course of Tonic medicines - We must next speak of the combination of the oxides of Iron with Acids - Sulphuric Acid combines with (the Peroxide of Iron) this forms the Per Sulphate of Iron (the former Sal Martis - combine Sulphuric acid with Iron filings & crystallise the Solution - for Medical purposes always prepare this by the direct combination the common Sulphate is often used, but comes from Pyrites & is impure - Sulphate of Iron consists of green transparent crystals efflorescing in the air, becoming opaque & covered with a white crust, its devoid of smell its taste is Styptic - Soluble in 3/4 of its weight Boiling & twice its weight of cold water - this excites more irritation in the Stomach than most of the Ferruginous preparations & when the irritation of the Stomach is great this often rejected & creates a sense of heat - it has lately been used in Intermittent Fever - In Solution give ℥j Sulphate in 1 pint water per 24 hours there is no doubt it averts the paroxysms yet is it entitled to no decided preference - Dose of the Substance 1 to 5 grs. The Super Tartrate of Potash & Iron is often given (Ferrum Tartarizatum, Tartrate of Potash &c - Mix 1 part Carbonas Ferri & 2 Super Tartrate of Potash & make these

into a mass with f. 1 of water - after standing a few days make it fluid with water, strain & evaporate it to syrup - this is generally the most pleasant - the solution in water has a very slight taste & is hence good for children. It is best given in solution with wine or water or in Tincture with Alcohol - in Dropsies, such as those arise the best preparations of Iron. - In the state of Tartrate, Iron is given in Dropsies terminating in engorgement of the abdominal viscera after Intermittent F. In Dropsies succeeding chronic Inflammations these either fail or prove injurious but in the South the preparations of Iron & particularly of Tartarization for what answer equally well Iron filings in cyder I am greatly pleased - Dr Ward of N. Carolina mentioned to me numerous cases of its success in Ascites - I have myself often tried this & other ferruginous preparations in such diseases of our public Institutions, but with invariably bad success or without any - Dose 1 gr. to ʒj in Boluses - but the solution is better - The Muriate of Iron is usually given as a Tincture of Alcohol - Mix in a Glass vessel Muriatic Acid & Sub Carbonate of Iron which shake for 2 or 3 days, decant & add Alcohol - this Tincture is the Muriate of Iron, it has a strong styptic metallic Taste, & is one of the most active preparations - it is highly lauded by many Physicians who prefer it to the other preparations - I have often found it good in Dyspepsia - Dose 10 to 30 & even up to 100 gtt a dose - The infusion of Iron in wine (Rhenish Wine is often given - infuse Iron filings in an acidulous wine (in a dry wine only a small quantity dissolves - this is a very agreeable form -

Dr. P's prescription is ℞ Arsenic 1gr, Cortex Peruv: 15 grs.—
Fiat pill XVI, one every 4 or 6 hours.—

The preparations of Iron constitute the chief of the Metallick Tonics - occasionally we have preparations of Copper but so rarely that we need not speak of these -

(B). Arsenic, is classed with Tonics without having much analogy to these & only proves a Tonic in Intermittents: this is by no means enough - if the action of the system find a general stimulant, almost all the organs feel an exciting power terminating speedily in effusions & hence Dropsical effusions into the Cellular Membrane are so common & on this account it is incompatible with much local Inflammation of any organ - when we see a disposition to Phthisis Pulmonalis, a cough, inflammation of the abdominal viscera this should be proscribed - but when no excitement is present & the paroxysm is perfectly formed, 'tis probably equal to Cinchona itself - still it is no Tonic - Arsenic as a metal is inert & it is only with Oxygen in the form of an oxide that its highly active & poisonous character is developed - It is only in this shape that Arsenic obtains entrance into medicine (arsenious acid, or white oxide) - The W. oxide of Arsenic is found in the shops crude or in powder - one should always obtain it in a mass for in powder 'tis adulterated with Carbonate of Lime, Sand &c - Arsenic is given in Solution or in Substance - Some, & among them Dr Physick, prefer the Substance in pills Dose 1/20 to 1/10 gr. The Solution is formed by boiling 10 or 12 grs in 1 pint water till 4 or 6 grs be taken up (this is all it can take up). Dose - varies according to age for children 4 or 5 drops, which increase with age to 20 or 30 - Fowler's solution is often used - Rx. 64 grs Sub Carb Potash & white oxide of Arsenic in ℥ 8 Water - (if there be a remainder 'tis impure.) Dose according to the age

4 to 20 drops, to be continued till contraindicated by obvious swellings of the eyelids & hands, after which it may prove injurious - I have not time to give you a minute account of Arsenic's symptoms when it proves a poison, or of the particular mode of detecting it in the system = these the lecture on Chemistry has rendered familiar to you, & in Paris & Thomson you will find ample accounts thereof. Sir, gentlemen, you are called upon in a court of justice to say whether an individual has been poisoned by arsenic never rely on results derived from reagents - The more I read in works which treat of the tests of Arsenic, the firmer is my conviction that no witness can with a safe conscience pursue such a course - There is but one case in which you can positively swear that the death has been occasioned by Arsenic & that is when you have reduced the Arsenic into a metallic state - I have no doubt that many individuals have been executed in consequence of the testimony of physicians (whether guilty or innocent I know not) whom the true evidence was insufficient to condemn - I advise you never to swear positively, till you have reduced it to a metal -

Astringents -

I told you that there was a subdivision of Tonics slightly differing from the rest, but whose general effects were the same - There is a difference in the taste of the two classes & the activity of the present, have an astringent stiptic Taste & create paleness of the mucous membranes, which results from the blood's abandon-

ment of the vessels in consequence of febrile contractions - this contractile power is their chief property & they were in consequence of possessing it used to check hemorrhagies & were entirely relied on previously to the invention of Ligatures - All astringents are characterized by 2 principles, viz Gallic Acid & Tannin to which they owe their local impression - they possess other properties in common with Tonics - Gallic Acid & Tannin are soluble in Boiling water, decompose salts of Iron & form solid masses with Gelatine - These remedies are very great favourites with some Physicians & are supposed to act very decidedly with that class of Cullen's diseases called Profluvia - these are supposed to exercise astringency over the extremities of the vessels, & to repress Hood, owing to which they have been employed in Chronic Dysentery, Chronic Diarrhoea, Chlorosis, Amenorrhoea & all passive Hemorrhagies - no class of medicines has probably been more abused than these in consequence of Cullen's arrangement. These diseases so far from originating as Cullen supposed & as some still suppose in debility on the contrary may be ascribed to excess of action - this remark is particularly true in Chronic Diarrhoea & Dysentery - in fact between these two diseases there exists no especial difference their variation consisting chiefly in their extent - Diarrhoea is chiefly seated in the small viscera, & Dysentery in the lower Bowels & Colon - If such be a correct view of the Pathology of these two diseases no plan is more contraindicated - I believe these affections are uniformly fatal or that very few Recoveries have resulted from the former astringent practice -

(+ This case I saw — R.R. Bosey)

most of them are difficult to manage - I have been forced to adopt these views from my experience in the Alms House confirmed by that of late writers & by the last 24 hours by a fatal case resulting from this treatment - viz - A man died yesterday in that Institution who at first had Dysentery & had been treated at first with the most powerful astringents, (Kino, acetate of Lead &c) his disease progressed & he came into the Alms House in the last state of emaciation - & a large ulcer was on examination found in his stomach, produced I have no doubt under the disease by the free use of Astringents - I have often seen this in the Alms House, & have pursued the practice myself, in cases where at first there was no affection of the stomach, & which did not supervene for several years. The Bowels in this case were also inflamed but not ulcerated - there are frequently ulcers caused in this way but they depend on the intensity of the affection of the Mucous follicles - when this is slight you have it is true an abundant dysentery - this proves irritation to be often located in different tissues & parts of the same Tissue - e.g. in Eruptions of the Skin -

Particular Astringents -

(A) Rhatany Root (Radix Rhatania) Krameria Triandria of Pen, lately introduced into medicine - This is a large reddish root with branches, containing Tannin, Gallic Acid, Rhatania acid - its taste resembles that of Port wine & most port wine of England is a tincture of this; this is probably one of the mildest Astringents & most resembles a Tonic - tisane in Infusion or Tincture - Infuse ℥ss to 1 pint Alcohol, & ℥j to a pint of Water -

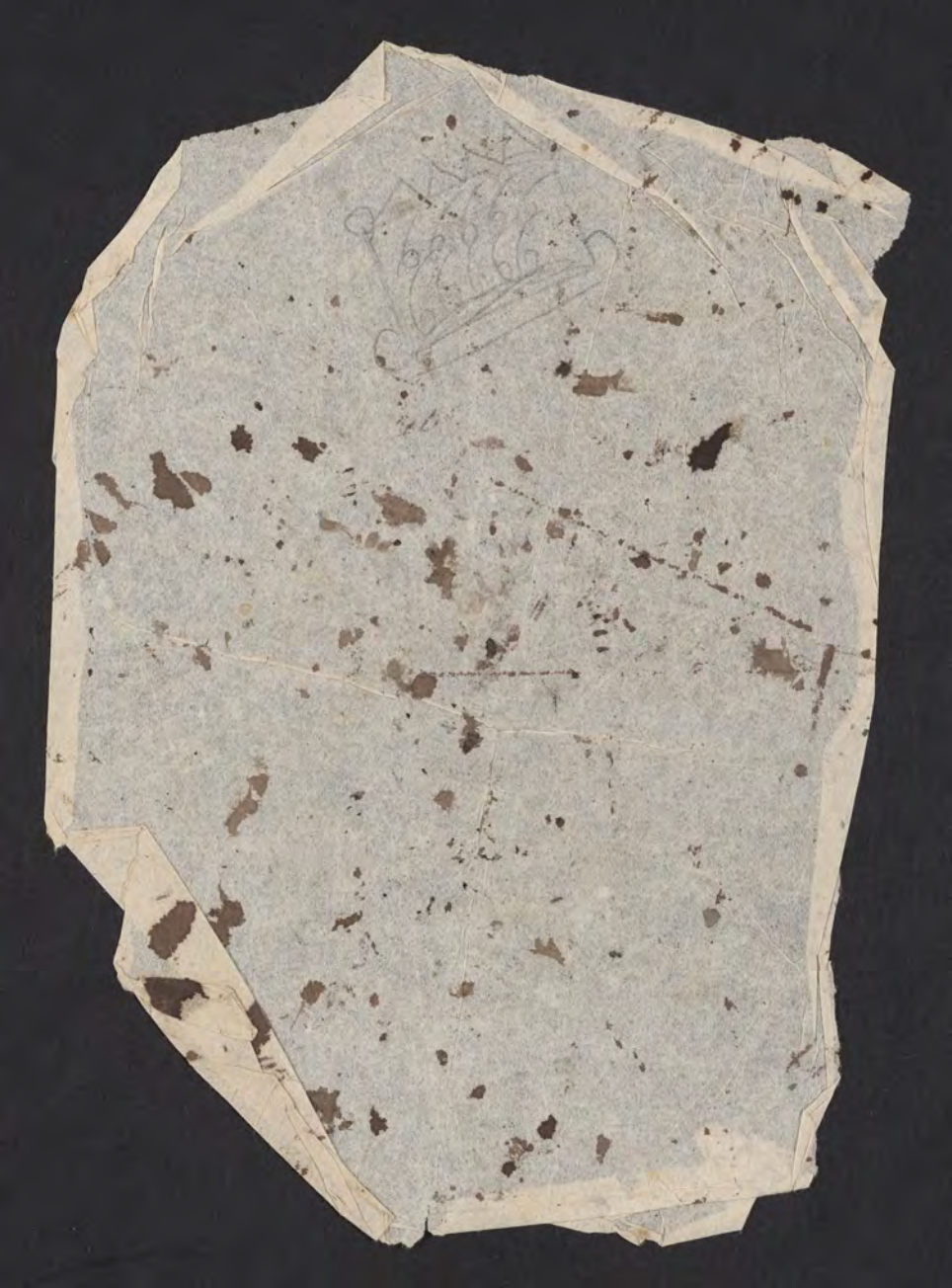
(B.) Galls are extracted from the leaves of the Quercus Cerris, contained in a nidus on the tree's tender parts (leaves &c), in fact 'tis a deposit of an animal - gall nuts are as large as a round lump like a cherry: they are knotty, rugous & hard - They are natives of the Levant & warmer parts of Europe - the best are the "alepho galls" which are of a greenish colour & possess high astringency - when grey they are very powerful they contain much Gallic acid & Tannin - given in Tincture watery infusion & Powder - Dose of the last 5 to 10 grs.

(C). Kino, is an astringent in great favour - it is extracted from many trees & has been ascribed to many - from africa it comes & is the product of a Pterocarpus, it comes also from the E Indies & S America & the best is in small reddish shining masses: 'tis not very soluble - a sphere comes from S America which is of a dirt colour (called Dragon's blood) & is futile - The dose of Kino in substance is 5 to 10 grs. a tincture is often made (3 j to 1 pint alcohol) dose ℥ss often taken with equal parts of Cinnamon -

(D) Catechu, greatly resembles Kino & is the extract of a tree formerly thought to be an earth, but is from a plant which grows in the E Indies - it is of a light brown colour has an astringent taste -

Of the astringents from the Mineral Kingdom

(A) Acetate of Lead is the first - Digest Red oxide of Lead in acetic acid & it forms in white crystalline masses of a sweet & styptic taste, 'tis the most active Metallic astringent & is generally preferred: it causes less irritation than the vegetable astringents & hence is often compatible when inflammation exists - in small doses of late it has been given



in Dysentery, often when diluted is given in Cutaneous affections I have on the same principle been taken within but be careful for the internal skin is far more sensible than the external - tho' if my stomach it irritates the external skin & even vesicates - hence be cautious how you apply it to the Alimentary Canal - I think we err, in too often administering it in cases of acute intestinal Irritations - Dose 2 to 5 grs & has been given more freely To arrest Hemorhage give 10 to 20 grs - it is often mixed with Opium & is very successful in Hemorrhagia but I found that this disease seldom ceased, till nausea was created & I am not certain that this is not the mode by which it acts (on the revulsive plan) - on this principle Emetics are given in Hemorrhagies -

I have now presented to your view the most principle Astringent medicines - there are others but these have most Repute - a few hours need only be selected & the quantity which lumber the Materia Medica, will not be much mistaken or totally banished

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I have now presented to your consideration the different classes of medicines & brought this course to its end - It has been my desire to give you as much useful information as was in my power & my great object to elevate the Materia Medica to-

a rank such as it should attain when in the hands of men engaged in the pursuit of philosophical science. It has been said & with some degree of truth that the Materia Medica, as usually studied, has been with the attention of a reasonable man. & when we see every thing like principles forgotten & men treating the properties of medicines only with a view to their actions in particular diseases, suiting remedies to diseases as tho' they were sticking their Bottles with labels, we must confess such conduct to be evidently empirical, & their success only such as may crown the labours of any quack. In the study of the Materia Medica, the most important views are those which display the actions of the system & explain the disturbances of the normal actions of the different organs. If in medicine, (however most certain remedies may suit particular diseases) there be no specifics, (a view which I have always taught & inculcated,) & if they are merely agents influencing the actions of the system, we must study these. I would invite you to continue to view the Materia Medica thus. to persist in the opinion (in spite of the different views of other practitioners) that remedies are not to be solely opposed to diseases, but to be viewed as agents influencing the powers of life: & that as you are acquainted with this mode of influence & the state of the organs in disease, so only can you practice philosophically! If this be wanting you will be incapable of saying whether a remedy will or will not benefit a disease. By following this course, your labours

will become greater & your Responsibility be in-
-creased, but at the same time your conscience will
be clear, & whatever may be the result, you will
derive satisfaction from the reflection that you
have done your best! You are now about to
commence your labours in another Medical School
& as I have not shared my efforts to promote, so
do I not now withhold my wishes for your
success.

"An account of "the Stethescope" & the diseases in which it is employed - being a summary of 3 lectures by Saml Jackson MD -" april 24, 25 & 1827 -

The viscera of the Thorax are not palpable to the sight & are the seats of diseases obscure & not easily to be ascertained - they are closely connected with each other & are consequently all disturbed by a disease that attacks either - nor is the confusion lessened when we discover in our fruitless search for Diagnostick characteristicks of their various affections that there exists a great similarity of symptoms between them - How often does the Physician prescribe improperly for them, being led away by mistaken views! nor is it unusual that whilst the sentinels are on their posts, their insidious deceiver & that the citadel is betrayed as a remote organ sounds the alarm - Most of my medical brethren have met with cases in which apparently there was only a derangement of the abdominal viscera - their treatment was adapted to such a disease nor were their errors discovered till a post mortem examination had indicated a diseased lung or other equally conclusive evidence of its Thoracic origin - this is not an imaginary case as the following fact will demonstrate - A Young Lady of this city who had suffered from some distress in the left side of the abdomen & whose case was considered by one physician as a disease of the Spleen & by another, of the Ovary after they had attended her for 3 months fell a

victim to the disease after much fever & emaciation had existed - her abdominal viscera were perfectly healthy & an abscess was now first suspected & discovered in the lung of the left side - no cough or any similar symptom had been present - The Cancer of this also occurs when after a death preceded by the symptoms of Pulmonary Con-
-sumption the viscera of the abdomen are alone found in a morbid state - it is common for Stricture of the Rectum to simulate Consumption of which it will display almost every Symptom - These remarks prove the difficulty as great as we have described it, yet this difficulty has been in a measure obviated by the Talent & genius of the age we live in & direct enquiries may be now made to the viscera & ~~[illegible]~~ answers received, so that the Philosopher who wished for windows in the Breast might now almost congratulate himself on the gratifi-
-cation of his desires - The means used for this purpose are 1. Percussion, 2. auscultation, 3 Succussion - 4. Mensuration of the Thorax & abdominal Pressure - The two first of these are of most importance & are confirmed by the others which may be reckoned subsidiary. Having devoted much time & some merit practice with this instrument I have acquired a tolerable profici-
-ency, particularly in reference to the two first & I will endeavour to lay down some practical Rules on the Subject.

PERCUSSION - The credit of its discovery is due to Auenbrugger of Vienna & was by him announced A D 1761 in a pamphlet which he styled Inu

ventum novum & which was permitted to pass without attracting much notice - a more general conviction of its importance was produced by Baron Corvisart who by the interest & labour he devoted to it may be fairly said to have made the discovery his own, & to owe to it no little of the fame he acquired in detecting the affections of the heart - after lecturing for 20 years on the subject, he published the treatise of A with commentaries by himself - AD 1808 - it has subsequently been adopted in France & on the continent generally & is now gaining a foothold in England - in this country it is as yet scarcely known, but is in itself so simple, so easy of application & certain in its results that it will not remain long in obscurity - I consider that no conscientious physician can neglect it after once becoming aware of its utility -

The operation consists in striking the Thorax with the fingers of a hand into a point - if healthy the Lungs always contain much air which keeps them in contact with the Thorax & this is resonant like a vessel of air - but when from any cause, the air cells are obliterated or the lungs compressed, a flat sound results - on these facts depends Percussion, which very clearly indicates these 2 states & also instructs us as to the dilatation of the heart - The extent of the sound shews that of the disease: & we may also ascertain which side or whether both are affected - Percussion should be performed whilst the patient sits - if you would examine him in front hold back his head & thrown back his shoulders - if on the side elevate the arms over the head - if on the back bid him lean forwards - The object of these

rules is to make tense the muscles - The resonance of the Thorax varies in its different regions being more distinct before than behind, & on the sides perpendicularly over the clavicle to the axilla & on the sternum than in the mammary region. The region of the heart may affect the sound - on the right side a flat sound is often consequent to a large liver - in percussing, strike first one side & then the other & compare the results - if disease exist only on one side you will find great difference of sound - be careful to strike precisely the same point on each side & with equal force, in fat & thin individuals who are equally healthy you must strike with different degrees of force, for fat or edema almost destroys the sound - practice on a healthy Thorax will be of much advantage to you - In considering the application of Percussion to the Diagnosis of diseases recollect that every change in the natural condition must affect its resonancy - when a clear moderate & equal sound is produced we may suppose that the air cells are free - but if a dull sound disease is indicated - if it exist only in a part the sound of that part only varies - The 3 morbid sounds are its dulness, its want of sound, or its more than natural resonancy - Dulness occurs in very severe Bronchitis in the commencement of sub acute Pneumonia - in light or Chronic B we do not meet with it because the air cells are not much engorged with mucus - Absence of sound characterises both acute & chronic Diseases - in acute Pneumonia, or Pl. Pleurisy & Pneumonia together, this is observed on the 2nd 3rd & 4th days. the earlier it appears the

more intense is the disease - as the disease declines, the natural sound returns - Pleuritis is accompanied by effusion, & percussion indicates both its existence & its intensity by this means. The following are results of my experience

"Corollaries applicable to these Diseases"

1. The duller & more solid sounds indicate greater severity -
2. The greater the space over which its extended, the worse -
3. There is more danger on the left side, because the pericardium is are more apt to become involved
4. The confinement of the morbid sound to the upper & anterior (say from the clavicle to the 4th rib) part of the Thorax indicates less danger.
5. The presence on the posterior part, of these morbid sounds is worse than on the anterior -
6. The morbid sound throughout one side of the Thorax is ordinarily a fatal symptom.
7. When the resonance (naturally very great) is wanting under the sternum, there is much pus under it or much Inflammation of the Mediastinum - a fatal sign -
8. The morbid sound in the region of the heart is uniformly fatal -

The resonance is also destroyed in the following Chronic affections - viz -

1st Hepatisation of the lungs caused either by acute or Chronic disease - this generally proves fatal - Carnification is analogous to this & is never cured - The one is owing to congested Blood - The other (Carnification) proves fibrin to have been secreted & renders the lungs similar to a muscle - The former occurs in Acute Pneumonia

2. Purulent vomica in the lung of the mediastinum -
3. Empyema or discharge of vomica into the pleura -
4. Serous effusion into the Thorax
5. Hydropericardium
6. Large extravasation of Blood into the Pleura -
7. Aneurism of the heart -

In the above diseases, percussion varies the sound - it does not tell their nature but their seat - it finds for us their origin & facilitates our investigations of their nature Compare always the 2 opposite sides - then the different regions of the same side - the sound of the left side is sometimes very great, particularly when the colon is much distended with flatus - the region of the Back gives a flatter sound -

SUCCUSSION. (Hippocratic succussion, so called from its being mentioned by Hippocrates) is only useful in one disease viz effusion of water & air in the Thorax - it consists in shaking the patient whilst his arms are elevated - the water is here positively discovered by its splashing sound, except (of course) when there is no air in the Thorax.

Mensuration. This consists in measuring the 2 sides of the chest, beginning at the vertebra & measuring to the Sternum - if the size of both be equal there exists no disease - In Chronic Pleurisy the side is even larger than the other & I have known the Lung to shrink to a size but very little larger than that of my fist - mensuration consequently in this disease is very useful -

There is a morbid sound, viz, increased loudness of Respiration which almost equals the noise of a drum & is quite as loud as the sound of a hollow barrel when struck - this is met with in Emphysema when the air cells are dilated from their natural size viz that of a pin's head to the size of a hazell or hickory nut - This sound which is characterised by great loudness & an impossibility to distinguish respiration by the ear or the Stethescope occurs at the termination of Chronic Catarrh or of Whooping Cough & I have known it as a result of severe straining - The same phenomenon is incidental to Pneumo Thorax (an effusion of air into the cavity of the Thorax) which may also occur from the opening of a fistula out of the Lung into the Thorax - the sound here is the same as in Emphysema - Without understanding Percussion every physician would be embarassed in the diagnosis of this & other sounds incidental to Thoracic diseases with its aid however he is inspired with a degree of confidence - yet is it not without its imperfections - such are obesity, oedema & largeness of the Mamma - it gives no particular results in Phthisis Pulmonalis in slight Pneumonia of both lungs & in many Cardiac diseases it either leaves us in obscurity or cannot modify the sound - it fails to detect Aneurism of the Heart till of old standing - it wants precision - Tis true that aided by observation we can derive some light but ours is a profession requiring absolute certainty -

Auscultation - It has by good authority been asserted that the discovery of Percussion was the greatest of which Medicine could boast - still more important however is Aus-

cultation, for it possesses all the advantages without the incerti-
-tude, conveys precise & pathognomic information which is
not restricted by individual peculiarities nor inapplicable
to any disease - Indeed since its discovery our diagnostics
in these complaints have become almost certain, & if in
many departments of Medicine Speculation has filled us
with discrepancies & doubts, this at least presents us
the charms of established Truth - Auscultation is
Immediate or Mediate - The former consists in the
direct application of the ear, to which however females
would object from delicacy & the physician sometimes
from cleanliness - at the same time the infor
mation conveyed is less clear, for the ear cannot trans
mit a limited sound - Mediate Auscultation is per
formed by means of an Instrument called a Stethoscope
& was invented by Laennec AD 1816 - it is a simple
cylinder with a hole thro' the centre & may be made
to divide - the screw should be of ~~Soft~~ wood tho
Laennec employed hard (Walnut & Mahogany) - I prefer
the Poplar one extremity is conically hollowed up-
-wards & fits on to the piece which has been cut out-
when about to explore the Respiration remove
this end & you collect the sound from a greater
space - but if you would examine the voice or the
heart, use it solid, in order that the morbid sound of
the heart be not obscured with that of the Lungs -
the principles on which it is constructed are that
sound is more easily conducted thro solid bodies than
thro' the air a familiar instance of which will be given

if you scratch a log at one end while some one applies an ear to the other - secondly - that the entrance of air into the lungs is attended with peculiar sounds when healthy which are varied by disease - of course when you have learned the one you can distinguish the other - this holds also in regard to the Heart. When the Ear is applied to a healthy chest a gentle murmur like the Breathing in sleep (but not snoring) will be heard & corresponds to the enlargement or contraction of the Thorax - over the region of the Heart, a rhythm & peculiar sound are discerned - There is also an impulse against the side of the Thorax & a variation of sound in the auricle & ventricle - These principles assist & enable us to form definite notions on this subject. Mediate Auscultation then has nothing that is empirical or is not sanctioned by Experience - The Stethoscope is used for the voice 1 for the Respiration 3 for the Circulation - 1st Voice - When a person speaks the hand placed on the Thorax will discover an agitation very perceptible, the Stethoscope teaches us that its degree varies - e.g. it is more strong in axilla, in the Back between the Spine & Base of the Scapula & near the angle of the Sternum & clavicle's junction - If you apply the instrument to the Trachea whilst speaking, the voice seems to proceed from the point to which it is applied - it is worth your while to study this sound - when a cavity exists communicating with that of the Chest, the voice through a Stethoscope just over this is similar to that from the Trachea & wherever we have this resonance there is a cavity - we call this "Pectoriloquism" - In Pleurisy accompanied with serous effusion this occurs & is called Hagophonism

from the resemblance of the voice to that of a Goat - this is however very limited being only heard along the Vertebral Column, between this Column & the base of the Scapula & at the lower angle of the Scapula - In certain lesions of the lungs there is a sound like the tinkling of a pin in a silver or glass vessel indicating water & air within the pleura & usually communicating with ye Bronchial Tubes, to be heard when the patient speaks - there is a confused sound like that of one speaking to a person in a cellar below him - Pectoriloquism which occurs more frequently is more difficult to understand accurately being obscured by many circumstances - i.e. if the cavity have not a clear opening with any of the vessels: if you examine when the passage of the air is stopped up by mucus it is wanting but returns after the patient has cleared it by a cough - If the excavations are large & communicate 'tis very confused - there is in the sound loudness without distinctness - Pectoriloquism is only distinct when the cavity is moderate - It may exist without any excavation as in the Early Stages of Ph. Pul - it is one of our least valuable diagnostics & always indicates the utter hopelessness of the patient's recovery -

2nd Respiration - Its natural character is best learned in children - it is nearly equally distinct throughout the Chest - it is more clear in the hollow of the Axilla, & at the lower end of the scapula & its junction with the Spine - over the Trachea air seems to pass thro' the cylinder as the patient breathes - Respiration is noisy in children, but in adults with rare exceptions indicates disease - In adults with large chests who

breathe slowly & are not easily put out of breath, tis very slow - Remove the plug from the instrument & keep the end perfectly opposite the heart - when there are spaces between the Ribs fill the vacuity with a piece of linen &c - do not judge hastily - keep very still - the clothing's quantity will not affect the sound but its quality may - thus silk causes a rustling - fatness does not impair the facility - hold the instrument by the lower end - accomodate the Ear to the instrument & do not move it to suit the Ear, close the opposite ear - direct the patient to vary his Respiration at different moments, & when you examine his back have his head held back & something interposed between you & him - a slow deep Respiration is scarcely audible & vice versa, whence it is often necessary to make the patient Respire & expire rapidly - if the sound be equal every where, there is no effusion in the Pleura - if we cannot find Respiration any where, some part of the Lungs is impermeable to the air - The Total absence occurs in 2 stages of Pneumonia & Pleuro Pneumonia in Hepatization, in Chronic Pleurisy, & whenever there is an obstruction to the natural action of the Lungs - The modifications of sound have been arranged into what are called Rattles — There are 1st The Crepitus Rattle which derives its name from its sounding like salt in the fire or like butter whilst frying & like the moving a dry Bladder - this occurs in the first stage of Acute Pneumonia of which it is pathognomonic, & usually in Chronic Pneumonia - it is generally met with in

Pulmonary Consumption which is mostly accompanied by Chronic Pneumonia - also in œdema of the Lungs & occasionally in Hæmoptysis, but in the last it may result solely from Pneumonic Inflammation - if the œdema be great the sound is nearly

2nd. The Mucous Rattle, this arises from the air of the lungs being transmitted through cells nearly filled with pus, mucus, blood &c - when this is limited to particular parts of the Thorax, it points us to the seat of excavated Tubercles - This usually exists in Acute & Chronic Bronchitis - if a large excavation exist, the noise is like the sound of oil shaken in a bottle, & may be heard whilst speaking.

3. Sonorous ~~Respiration~~ Rattle. Is more or less deep, & resembles the noise of snoring, or the note of a cuckoo (a toy made for children where the sound is made by forcing the air thro' a narrow opening). It occurs in intense Bronchitis in consequence of the Bronchial membrane being Tumid & produces narrow apertures in the Tubes through wh the sound passes - it is probably also owing to the enlargement of the projections of the Mucous Membrane in the cavity of the Bronchia, a state of the membrane always accompanying this disease -

4th. The ~~Sibilous~~ Sibilous Rattle - this varies, resembling at times prolonged whispers, the chuckling of a Bird, the motion of a valve, or the separation of 2 pieces of marble which have had oil between them - this Rattle occurs in Ph. Pul: & in Pul: Catarrh - Dissection detects its origin to be consequent to thickened mucus collected in the

Bronchial Tubes - The Crepitus Rattle is attended with more Mucus Expectoration than this which occurs at the close of Expiration - (A gentleman from Jamaica whom I knew had no murmur whatever but he could discharge much fluid mucus which was very thin without even coughing there was no Rattle & he had what may be termed a gleet - at the last accounts he was still in this State) The Sonorous rattle occurs in humid Asthma which is a modification of Bronchitis & depends on irritation of the Mucous Membrane producing Congestion - the paroxysms are irregular, the mucous membrane is turned & all the Lungs sonorous - This & the Sibilous Rattle never indicate danger & are relieved by local depletion, (particularly between the shoulders) & the irritation of cups, by emetics & if the stomach be sound by a Emulsion plan - Ipecacuanha & Senega Snake Root are very good - We may also learn the state of the organs of Circulation especially the Heart, by the Stethoscope - It teaches us 1st The Sound of its action 2nd Its Impulse, 3rd Its rhythm or succession of contractions - 1st The Sound - In a natural state of the Heart apply the ear between the cartilages of the 5th & 6th ribs or at the lower end of the Sternum you will hear a sound even tho' there be scarcely any pulse at the Wrist - In health the sound is double the first part being clear & rapid like a pair of Bellows & is ascribable to the systole of the Auricles - the second is dull & prolonged, coinciding with the pulse at the wrist & is owing to the contraction of the Ventricles -

The sound (alluded to) under the sternum comes from the right cavities, that under the cartilages from the left. in a state of integrity the sound is equal in both these places but not so in disease - the sound is loud in proportion to the thickness of the parietes & the force of the heart. when the heart's sides are thickened (Hypertrophia) it is dull - if the disease is violent you can scarcely hear any thing but the impulse is sufficiently great to shake the head if it be applied to the Thorax - In health the heart's contractions make most noise in the Cardiac Region, but not in disease - if the sound be weaker below the Clavicle we may calculate on a healthy state & if diseased the reverse often occurs. 'According to the extent of the action of the heart being perceived, the greater is its increase.' In very great distentions of this viscus you hear it through the left or even the right scapula - here, the heart is greatly distended & its parietes are very thin - in one case I saw it transparent & as thin as this sheet of paper, & in fact resembling the Pericardium - The Conformation of the individual is not without its influence. A narrow chest in a thin person gives out a distinct sound under the clavicle even when he is in health & in a man of large deep chest, the sound is dull, but if there be no impulse disease is not present. The natural sounds of the heart are varied in disease, indicating different affections - These affections are 1st - A sound like that of a Bellows & somewhat hissing characterises no very marked disease & is often

Temporary, supposed to depend on spasm of the heart itself or of the muscles of the valves - A late observer (who has a very hard name, I forget what) discovers this in pregnant woman & says (how truly I know not) that he can thereby ascertain whether the uterine circulation goes on!
The 2nd is like a harp or a saw working on a thin Board - this is permanent & indicates obstruction of the course of the Blood usually at the orifices of the heart - (In one case whether owing to nature or to disease I cannot vouch all the arteries were depend but not obstructed - the abdominal aorta as small as an ordinary carotid the femoral as small as the radial, & the heart very large insomuch that its coat was mistaken for the Pericardium - This sound had been very loud -
2nd - The Impulse - this is inversely as the sound & directly as the Thickness of the heart - a powerful impulse denotes Hypertrophy - in some cases you have both the sound & the Impulse which denote both Hypertrophy & dilatation. Often the impulse is temporarily affected as in fevers & nervous affections - but the impulse from thickening is permanent
3rd Rhythm - is distinguished in disease - It is the order of the contractions & duration - the heart & pulse are isochronous in disease - there is afterwards a short voice like a whip proceeding from the Auricles & instantly succeeding the ventricles - only the 2 sounds are heard - In dilatation of only one auricle or ventricle the heart cannot contract as naturally if both be enlarged they will require more time -

Hence Rhythm is lost & the sound is confused - you hear 2 sounds at a time & cannot separate them: here you may be satisfied of a dilatation existing in part of the heart. The diseases of the heart should be designated now to render these remarks complete, but that office I leave to another lecture -

After some years experience I become more & more convinced of the importance of Auscultation & urge it on you to become familiar with it - It is to be lamented that much patience, labour & time are requisite to become acquainted with these deviations from Nature & it is long before the ear is instructed - 'tis only to be learned in Hospital practice, for in private patients the cases are scattered & we have few opportunities for Post Mortem examinations few have the resolution to go thro' the labour But this is a difficulty not peculiar to either Percussion or Auscultation, for there is no science to which it may not justly be objected & especially no branch of the medical - No science has less of a royal road than medicine, & all its students acquire must be the reward of much labour, diligence & perseverance.

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Loxa, Crown – Pale Bark –

Calisaya – Carthagena – yellow bark –
$2,00 pr lb – – 10 cts pr lb.

"My sister in law did not prove enceinte, so far from being jealous of my having a charmant infant, she was fond of my Caroline even to folly!"

Madame de Genlis.

℞ Ol. Succini — — gtt. LXXX.
G. Arab. — — — ℥j
Balsam Tolu — — — — ℥j
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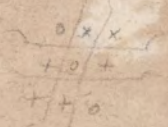

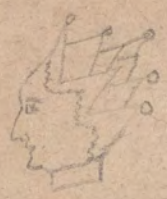

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